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FAMILY PLANNING PROGRAMS

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Men—New Focus for Family Planning Programs

Editors' Summary. It takes two. For years, many family planning programs forgot that. But now family planning programs are beginning to recognize that men, too, are vital and interested participants in family planning. With mass media promotion tailored to this new audience, these programs are reaching men with messages and methods that encourage them to support family planning actively.

It is often assumed that men have little interest in responsible parenthood. The few surveys available report otherwise. They suggest that many men favor family planning. Even in Africa—once considered the stronghold of male opposition—recent surveys in Burkina Faso, Nigeria, Kenya, and Sudan find that a substantial majority of men approve.

Four Methods for Men

Worldwide, at least one-third of all couples who practice family planning use a method that requires male participation or cooperation:

- **Condoms** are used by an estimated 46 million men with wives of reproductive age. Condoms are effective if used with perfect consistency. But some couples do not always use them.
- **Vasectomy**—voluntary male sterilization—is a permanent method used by some 41 million men. It is almost completely effective, and recent improvements are making the procedure even simpler.
- **Withdrawal** is used by an estimated 35 million couples. Pregnancy rates are often high, because the man does not always withdraw in time. Still, the method is always available and costs nothing.
- **Periodic abstinence** can be effective if a woman can monitor signs of the fertile period and if she and her husband cooperate in abstaining from sex when indicated. Most of the method's 17 million users just guess about the fertile period, however. This—and failure to abstain—leads to unplanned pregnancies.

Family Planning Programs for Men

Increasingly, family planning programs are trying to reach men—to offer male-oriented methods and to stimulate men to take more responsibility for family planning. For condoms, commercial sales remain the largest source, and sales may be increasing. Social marketing programs also sell contraceptives through retailers, but support from government or donor agencies permits lower prices. There are now almost 20 major social marketing programs, including new efforts in Ghana, Indonesia, Mexico, Nigeria, and Pakistan. They vigorously promote condoms and other methods and are making them more acceptable. At first, vasectomies were performed primarily by government programs in Asia—particularly in Bangladesh, China, India, Nepal, South Korea, Sri Lanka, and Thailand. Now in Latin America small private programs are revealing a demand for vasectomy.

Programs to encourage men's involvement in family planning are springing up throughout the world. In countries as varied as Hong Kong, Jamaica, Mauritania, Mexico, Nigeria, the Philippines, the UK, the US, and Zimbabwe, programs offer men discussion groups, lectures, drop-in centers, counseling, "Fathers' Clubs," videos, and more. Some programs are going to the workplace to reach men.

With the encouragement of a growing number of family planning programs around the world, men are showing a new concern over family size and child spacing. They also are recognizing the benefits that they as well as their wives and children can derive from family planning.

End of Editors' Summary.

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MEN'S INVOLVEMENT IN FAMILY PLANNING

Men play a major role in family planning. This obvious but often neglected fact is receiving new attention in family planning programs. Regardless of which partner actually uses a family planning method, the man often has a major say in decisions on childbearing and family planning. Evidence is limited, but it suggests that many men will take responsibility for family planning when they have the information and the means. In fact, one-third of all couples using family planning rely on a male method—condoms, vasectomy, or withdrawal—or on periodic abstinence, which requires full male cooperation (see pp. J-894–898).

Men's Role in Family Planning

In most societies the husband is usually the dominant decision-maker, and his wife is expected to abide by his decisions (41, 53, 116, 267, 276, 374). Cultural patterns vary, of course, but usually a wife's economic dependence on her husband gives him great influence in major household decisions.

This dominant male role often extends to a couple's reproductive behavior. Men have an important say in decisions about family size and the use of family planning (15, 85, 137, 241, 267, 329, 337, 374, 387, 454). In countries as varied as Hong Kong, Indonesia, Mexico, Nigeria, South Africa, Thailand, and the US, studies have found that her partner's attitude influences a woman's decision whether to use family planning (43, 92, 241, 274, 302, 346, 374). In both Mexican and South African studies the husband's attitude was the reason that women gave most often for using or not using family planning (92, 302). Among married female students in Nigeria, one of every five who were not using a modern contraceptive method said that her husband's objection was the reason (274). In Indonesia focus-group research suggests that the husband's influence on use of family planning is strong, especially early in marriage (378). Thus, even if a woman favors family planning, she may not take the initiative to use a contraceptive without her husband's consent (41, 110, 149, 323, 337). In many countries law or program policy prevents a woman from obtaining family planning services without her husband's consent (433).

Men also can influence how long their partners continue to use family planning. Family planning projects in the late 1960s and 1970s that involved men as well as women showed that men can encourage longer use (5, 111, 351). In a family planning education program in Turkey, for example, when both husbands and wives received information, the continuation rate after two years was 92 percent, compared with 86 percent when only the wives received information (111). In Iran in the late 1960s, when women requesting oral contraceptives for the first time came to the clinic with their husbands, and their husbands were asked to make sure that their wives took the pills, the continuation rate at six months was 93 percent. In contrast, among women seen alone the continuation rate was only 12 percent (351). Conversely, in places as different as Jamaica, the Philippines, and the US state of Louisiana, studies found that husbands' active disapproval led women to stop family planning (45, 198, 230). In the Philippines only half of women whose husbands tried to discourage them were still using contraception after one year compared with 72 percent of other women (198).

Do Men Favor Family Planning?

What are men's attitudes toward family planning? In the past most fertility research has focused on women. Now more surveys are questioning men, too, about their attitudes toward family planning, their knowledge, and their use of contraceptive methods.

The Caribbean Male Contraceptive Prevalence Surveys, conducted in the early 1980s (88, 146, 214, 215), plus small, earlier studies in India (6, 81), other Caribbean countries (13, 223), Latin America (136, 397), and the US (183, 239, 370), are among the few surveys of men's attitudes toward family planning. Although small in number, they suggest that many men favor family planning. In these surveys 65 to over 90 percent expressed approval.

Whether men are more likely than women to approve of family planning appears to vary. Surveys in Japan and India in the 1950s and 1960s found somewhat higher approval rates among men (306, 358). Surveys in India and in Trinidad and Tobago in the mid-1970s found higher rates among women (13, 81). All the differences were small, however.

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While most men say that they favor family planning, some do oppose it, for a variety of reasons. Some fear it will undermine their authority as head of the family or encourage their wives to be unfaithful. Others are opposed on religious grounds. Some fear harmful side effects of contraceptives. Others may want many children to prove their virility and enhance their prestige in the community (1, 13, 57, 155, 163, 199, 254, 302, 346, 372).

Nevertheless, there is little recent evidence that male opposition is a major obstacle to family planning in most areas. Among women in South Korea, Thailand, Tunisia, and several Latin American and Caribbean countries who were asked their main reason for not using contraception, very few cited the opposition of their husbands (244). Even in Africa, where male opposition to family planning is considered strong (80, 89, 155, 221, 240), recent surveys show that attitudes are changing, and many men now favor family planning, particularly for child spacing (106, 204, 254, 275, 391). In 1971-73 a national survey in Nigeria found that only one-quarter of men approved of family planning (155). In 1982, however, a small survey in Lagos, Nigeria, found that 79 percent of men supported family planning for child spacing, and 65 percent, for limiting family size (275). Similarly, in a 1970 survey of South African black men, more than half expressed disapproval (221). In contrast, a 1976 survey found that only 18 percent definitely opposed family planning. Some 57 percent favored using contraceptives (391). In Khartoum, Sudan, in 1982, 81 percent of men surveyed approved of child spacing. Only 29 percent approved of limiting family size, however (254). In Kenya in 1985, 81 percent of husbands surveyed said that they were willing to support their wives' practice of family planning (106). Among men in Ouagadougou, Burkina Faso, who were not using family planning when surveyed in 1986, 61 percent of those who had never practiced family planning or who had previously used a traditional method said that they intended to use a modern method. So did 71 percent of those who had previously used a modern method. Lack of information, rather than opposition to family planning, was the major reason given for not using a modern method (430). Three-quarters of young men in Monrovia, Liberia, and, depending on educational level, between 44 and 87 percent of young men in Ibadan, Nigeria, favored the use of contraception if young people were sexually active. In both countries these responses were similar to those of young women (197, 415).

Lack of communication between husband and wife may be a greater obstacle to family planning than male opposition. Couples who talk about the number of children they want and about family planning are more likely to use contraception and to achieve their family planning goals than those who do not (48, 55, 62, 149, 239, 250, 284, 323, 343). Several studies, most carried out in the 1960s and 1970s, suggested that many husbands and wives did not discuss sexual matters or family planning (285, 298, 299, 340, 358, 372, 373, 382). This may be changing, however. For example, in a 1970 national survey in India, only 19 percent of spouses reported discussing family planning, but by 1980 the figure had increased to 35 percent (186).

Do Men Feel Responsible for Family Planning Decisions?

Only a few surveys have asked this question, but they suggest that many men want to share responsibility for family planning decisions (54, 60, 88, 107, 146, 182, 214, 215, 243, 324, 347). For example, in the 1984 Dominican Republic Contraceptive Prevalence Survey 37 percent of men said that partners should share responsibility for family planning. Over 60 percent of the college-educated men said so (88). Overall, however, 43 percent thought that family planning was the man's responsibility alone. Some 19 percent thought that it was the woman's responsibility (88). Men in Dominica reported similar feelings (146). In Barbados and St. Kitts-Nevis somewhat higher percentages—47 and 41—thought that family planning was a joint responsibility (214, 215). In a 1978 survey in the US, almost

If men are going to share responsibility for family planning, they must start by talking with their wives—about when they want children and how many, and about what family planning methods they will use. This cartoon comes from a set of slides prepared by the Asociação Brasiliera de Entitades de Planejamento Familiar in Brazil.

three-fourths of the adult men and over half of the male adolescents interviewed thought family planning should be a joint responsibility (107). Along the Mexican-US border in 1979, most women practicing family planning said that the decision to use contraception was made jointly with their husbands (360). In similar surveys in Fiji, India, Iran, Mexico, and South Korea in the late 1970s, a majority of men in all five countries said that both partners together decided on how many children to have and what contraceptive method to use. From 50 to 88 percent of the men also said that they were willing to use a contraceptive method either all the time or alternating with their wives (435). Other studies suggest that, even though many men see decision-making as a joint responsibility, many still prefer the woman to take responsibility for actually using a contraceptive (69, 107, 115, 223, 243).

Do Men Want Larger Families?

There is no evidence that men want more children than women do. Only two national surveys have compared husband's and wife's desired family size—the 1975 Thailand Fertility Survey and the 1980 Egyptian Fertility Survey. Both found very little difference. In Thailand husbands wanted an average of 3.9 children while wives wanted 3.7 (64). In Egypt both husbands and wives wanted just over four children (138).

In the Dominican Republic the question was posed differently, but the results were similar. In the 1983-84 Contraceptive Prevalence Survey of women and the 1984 survey of men, respondents were asked if they wanted an additional child. As the table below shows, in general only slightly more men than women wanted another child. Many women, however, mistakenly thought that their husbands wanted another child. Most men and women wanted a total of two or three children (21).

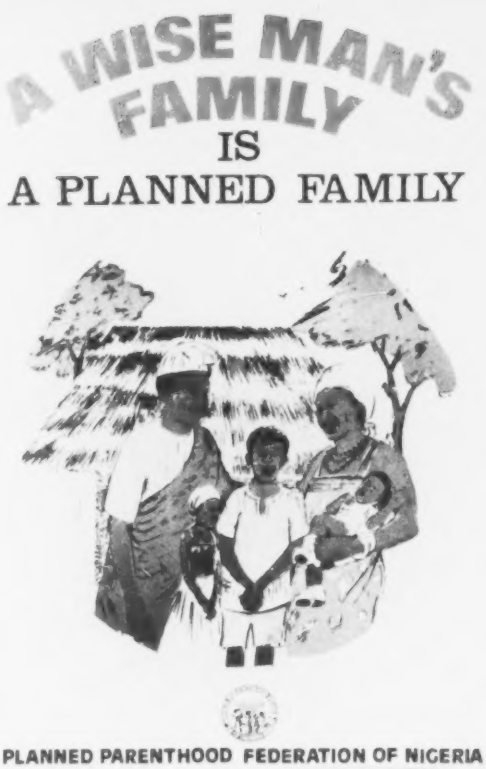
No. of Living Children	% of Women Wanting More Children	% of Men Wanting More Children	% of Women Who Think Husbands Want More Children
0	87	100	89
1	73	85	87
2	46	44	67
3	19	29	56
4	10	15	39
5	7	13	37
6+	3	10	28

Men in Barbados, Dominica, and St. Kitts-Nevis also want small families, between 2.1 and 3.1 children on average. These numbers are close to what these men consider ideal but less than what they actually expect to have (146, 214, 215):

Country & Year	Mean No. of Children		
	Desired	Ideal	Expected
Barbados 1982	2.1	2.3	3.0
Dominica 1982	3.1	3.1	4.4
St. Kitts-Nevis 1982	3.1	3.3	4.3

This pattern—the ideal number much less than the expected number, and the desired number smaller still—is typical of surveys asking the same questions of women.

Overall, these data—plus information from earlier, mostly smaller, studies in Ghana, Hong Kong, Kenya, Nigeria, the Philippines, the US, and elsewhere—suggest that differences between men's and women's average family size desires are small within a country (6, 14, 40, 60, 86, 145, 155, 370). Differences among countries and among socioeconomic groups within a country are greater. Both men and women often express a preference for more sons than daughters (6, 64, 67, 138, 413).



Family planning communication often appeals to men's pride in their role as provider and decision-maker for the family. This Nigerian poster points out that the wise man plans his family.

In focus-group sessions in Mexico both men and women favored small families in principle, particularly for the sake of the children's welfare and the wife's health. On a personal, or emotional, level, however, men's feelings were ambivalent. For example, they tended to see many children as a sign of a man's virility; they had more respect for women with large families; and they thought women with few children were bad wives. On balance, while women tended to favor small families for themselves, men more often favored large families for themselves. In a larger survey as part of the same study, however, only 14 percent of men agreed that a man usually wants more children than his wife, while 17 percent said that he usually wanted fewer (112, 302).

Economic considerations undoubtedly influence a couple's opinions and decisions about family size (47, 95), and there is no economic reason that men should want more children than women. Many men and women in developing countries still expect to derive some economic benefit from their children and view them as a source of security in old age. This expectation, however, may be stronger among women than men since women usually have fewer

earning opportunities and often outlive their husbands (52, 344). Perhaps even more relevant, the financial responsibility of raising children falls more heavily on the man in many societies (344). Village studies in India in the late 1960s and 1970s found that men were aware of the economic costs of raising children and that the economic benefits were less important to them than to the wives (298, 398). Similarly, in the 1975 Thailand Fertility Survey 35 percent of husbands saw no disadvantages in a small family, while less than 5 percent saw no advantages. In contrast, less than 4 percent of husbands saw no disadvantage in a large family, while 21 percent saw no advantages (64). Raising children in developing countries still costs less than in industrialized countries—much less than in the US, for example, where a 2-child, middle-class family will spend an estimated $99,000 (US) at 1987 prices to raise one child to age 18 (94). Nevertheless, the financial burden of child-rearing is increasing everywhere. Along with the rapid socioeconomic development occurring in many societies, people's aspirations for their children are increasing. They want their children to have longer schooling and better medical care. These goals give men a strong financial incentive to limit family size.

How Much Do Men Know About Family Planning?

Most men know about family planning, at least in the few areas surveyed. In the Dominican Republic Male Contraceptive Prevalence Survey, 90 percent of men in union could identify at least one family planning method, while in Barbados, Dominica, and St. Kitts-Nevis 79 to 80 percent of men interviewed were familiar with family planning methods in general (21, 146, 214, 215). In the 1980 Egyptian Fertility Survey 89 percent of husbands knew of at least one modern family planning method (138). Men in South Korea; Trujillo City, Peru; and the US have reported similarly high rates (182, 284, 397). As Table 1 shows, however, knowledge of specific contraceptive methods in the four Caribbean countries, Burkina Faso, Thailand, and Egypt varied considerably among both men and women. In general, more men knew of male methods, while more women knew of female methods. In Burkina Faso, however, more men than women knew about female as well as male methods, although more men knew of the male than the female methods (430). Similarly, in recent small surveys in Lagos, Nigeria, men were more aware of male methods than female methods (275, 384). Among one group over 90 percent had heard of condoms, 75 percent had heard of withdrawal, and 59 percent had heard of oral contraceptives (275).

In only a few surveys have more men known about female methods than male. In a 1982 survey in Khartoum, Sudan, 88 percent knew of oral contraceptives, but only about half knew of condoms or withdrawal. Only one of every four had heard of vasectomy (254). In South Africa also, in 1979 more husbands knew of oral contraceptives, the IUD, and injectables than of condoms (391). These findings probably in part reflect the limited access that men in these countries have to male methods.

Knowing about contraceptive methods is little use unless men actually know where to obtain services or supplies. In the four Caribbean surveys men were asked to name sources of family planning services and supplies. In Dominica almost half did not know of any. In Barbados and St. Kitts-Nevis one-quarter of men did not know of any source (146, 214, 215). (Answers to this question in the Dominican Republic have not yet been tabulated.) While these findings are limited, they suggest that programs for men need to emphasize not just information on methods but also where men can obtain supplies and services.

Table 1. Percentage of Men and Women Who Know of Specific Contraceptive Methods, Representative Sample Surveys in Seven Countries, 1975–1986

Country	Ref. No.	Year	Sex	OCs	Condom	Diaphragm	Foam	Injection	IUD	Sterilization: Female	Sterilization: Male	Rhythm	Withdrawal	Other
Barbados	214	1982	M[a]	90	96	68	83	70	61	84	76	56	77	NA
	257	1980–81	F[a]	94	83	——72——		74	74	80	62	44	50	1
Burkina Faso (Ouagadougou)	430	1986	M[b]	56	64	NA	NA	53	27	NA	NA	61	26	NA
			F[a]	54	34	NA	27	42	37	NA	NA	36	14	NA
Dominica	214	1982	M[a]	80	92	29	53	61	60	68	47	45	76	NA
	30	1982–83	F[c]	86	76	——37——		76	67	65	28	25	37	NA
Dominican Republic	88	1984	M[d]	90	88	——53——		65	57	91	29	27	40	10
	87	1983	F[a]	95	83	——65——		73	82	95	35	41	41	4
Egypt[e]	138	1980	M	89	35	——NA——		7	56	——11——		——NA——		
			F[a]	90	28	——NA——		16	71	——44——		——NA——		
St. Kitts-Nevis	214	1982–83	M[a]	92	95	56	75	66	65	64	52	49	73	0
	169	1984	F[c]	99	96	67	80	88	89	74	28	34	66	NA
Thailand[e]	64	1975	M	86	57	——20——		54	74	83	75	34[f]	——1——	
			F[a]	93	49	——23——		72	87	88	72	45[f]	——0——	

NA = not available
OCs = oral contraceptives
[a]Age 15–49
[b]Age 18–62
[c]Age 15–44
[d]Age 15–59
[e]Survey of husbands and wives
[f]Includes abstinence

What Do Men Think of Specific Contraceptive Methods?

Little information other than anecdotes exists on what men think about specific contraceptive methods. The only recent national surveys to inquire into men's attitudes toward specific methods are those in Barbados, Dominica, the Dominican Republic, and St. Kitts-Nevis. Between 50 and 80 percent of men who knew of at least one method said that they were willing to use a male method. In all four countries most of these men preferred condoms, perhaps because condoms are well-known in all these countries and men can obtain them easily. In contrast, distinct differences in the acceptability of vasectomy emerged. Nearly 15 percent of men in the Dominican Republic who were not using a male method said that they would consider a vasectomy in the future, even though far less than one percent of men had vasectomies and only 29 percent knew of the method before the survey (21). In contrast, in the English-speaking Caribbean countries very few men were willing to consider vasectomy (146, 214, 215). Differences also emerged in men's attitudes toward female methods. In the Dominican Republic, where female sterilization is the most widely used method, over 80 percent of men approved of it. In the other three countries almost half the men disapproved of sterilization but favored oral contraception, which is the most widely used female method in these countries. These results suggest that future surveys should explore whether familiarity with a method improves attitudes toward it.

In the surveys of men in Fiji, India, Iran, Mexico, and South Korea, men were asked how willing they would be to use two existing contraceptive methods—condoms and vasectomy—and two hypothetical methods—a daily pill and a monthly injectable. The most consistent finding among the five countries was that vasectomy was much less acceptable than condoms or the hypothetical methods. In Fiji and urban India the condom was preferred to the hypothetical methods, while elsewhere the hypothetical methods were preferred (435).

Where Do Men Obtain Family Planning Information?

Men usually learn about contraceptives from their wives, friends, or the mass media, but seldom from health care professionals. This finding reflects health professionals' focus on reaching women, rather than men, with family planning information. In Mexico men were more likely to obtain information from advertising campaigns, their peers, and their wives than from doctors and other health workers, who tended to be important sources for women (302). In the 1980 Egyptian Fertility Survey men said that friends and relatives were most often their sources of information, followed by radio and television. Health care workers were not an important source (138). Mass media, particularly radio, are important information sources for men in South Korea, Sudan, and South Africa, according to surveys in these countries (254, 284, 391).

In sum, it is clear that men have a major influence on family planning decisions. Most recognize the importance of family planning and are in favor of it. The available evidence suggests that there is an interested clientele for family planning programs that offer men easily accessible, high-quality services or encourage men to support their wives' use of contraception.

USE OF MALE METHODS

Many men not only play an important role in fertility and family planning decisions but also are willing to use contraception. Although female contraceptive methods are usually more heavily promoted, one-third of all couples using family planning rely on male methods—condoms, vasectomy, or withdrawal—or on periodic abstinence, primarily rhythm, which requires full male cooperation (see Table 2).

In developed countries national surveys suggest that over half of contracepting couples rely on male-oriented methods. Many couples were relying on withdrawal, periodic abstinence, and later condoms long before modern female methods became available. This experience probably still influences contraceptive decisions. Also, in some countries, particularly Japan and in Eastern Europe, modern female methods are restricted. When women were surveyed in the mid and late 1970s, condom use was most common in Japan, Denmark, and Finland but also was prevalent in Italy, Norway, Poland, the UK, and the US. Vasectomy is popular in the Netherlands, the UK, and the US (see Tables 2 and 3).

In contrast, in developing countries the spread of family planning is more recent, following the development of modern female contraceptive methods. Furthermore, family planning services have often been offered in the context of maternal and child health programs, particularly in Asia and more recently in Africa. Thus, from the beginning these programs promoted female methods. Still, a quarter of contraceptors in developing countries rely on male-oriented methods (see Tables 2 and 3).

Trends in Developed Countries

Men have long been willing to practice family planning, as the experience of Europe and North America demon-

Family planning groups everywhere are making special efforts to reach men. Here Muslim men attend a panel discussion sponsored by the Jordan Family Planning and Protection Association. (JHU/PCS)

Table 2. Estimated Percentage and Numbers (in 1,000s) of Married Women of Reproductive Age (MWRA) Relying on Any Family Planning Method and on Methods Requiring Male Participation, by Area, 1986

Region	Any Method		Method Requiring Male Participation			Condoms		Vasectomy		Rhythm		Withdrawal	
	No. of MWRA	% of MWRA	No. of MWRA	% of MWRA	% of Contraceptors	No. of MWRA	% of MWRA	No. of MWRA	% of MWRA	No. of MWRA	% of MWRA	No. of MWRA	% of MWRA
AFRICA													
Sub-Saharan Africa	8,000	10	3,000	4	38	1,600	2	0	0	400	1	1,000	1
ASIA & PACIFIC													
China	140,000	71	22,900	12	16	3,000	2	17,900	9	800	1	1,200	1
India	53,000	35	27,400	18	51	7,600	5	15,300	10	1,500	1	3,000	2
Other Indian subcontinent	6,000	12	3,000	6	50	1,000	2	500	1	500	1	1,000	2
Other Asia*	30,500	40	7,300	10	24	2,400	3	1,000	1	1,800	2	2,100	3
All region*	229,500	47	60,600	12	26	14,000	3	34,700	7	4,600	1	7,300	1
LATIN AMERICA & CARIBBEAN													
Brazil	11,000	56	1,800	9	16	400	2	10	.02	600	3	800	4
Mexico	5,000	40	1,000	8	20	200	2	25	.2	500	4	300	2
Other Latin America	7,900	41	2,800	15	35	400	2	20	.1	1,300	7	1,100	6
All Caribbean	1,600	41	500	13	31	200	5	15	.3	100	3	200	5
All region	25,500	46	6,100	11	24	1,200	2	70	.1	2,500	5	2,400	4
NEAR EAST & NORTH AFRICA													
All region	10,600	24	3,600	8	33	900	2	0	0	500	1	2,200	5
DEVELOPED COUNTRIES													
Japan	11,665	64	9,300	51	80	7,800	43	500	3	800	4	200	1
United Kingdom	8,100	83	3,900	39	47	1,700	17	1,400	14	200	2	600	6
United States	22,000	68	7,700	24	35	3,200	10	3,200	10	1,000	3	300	1
All others	82,800	64	44,500	34	53	15,500	12	1,300	1	7,000	5	20,700	16
All developed countries	124,600	66	65,400	35	52	28,200	15	6,400	3	9,000	5	21,800	12
TOTALS													
All developing countries	273,600	41	73,400	11	27	17,700	3	34,800	5	8,000	1	12,900	2
All developed countries	124,600	66	65,400	35	52	28,200	15	6,400	3	9,000	5	21,800	12
World	398,200	47	138,800	16	35	45,900	5	41,200	5	17,000	2	34,700	4

*Excludes Japan

strates. The demographic transition in these areas from high to low fertility was probably achieved mainly through the widespread use of withdrawal (420). Indeed, until just 25 years ago the few contraceptive methods available were mostly male methods—condom and withdrawal—although the diaphragm had become available to a limited extent early in the century (419). In a 1960 US survey 50 percent of married women age 18-44 reported that at some time they and their partners had relied on condoms, and 17 percent reported that they had relied on withdrawal (411). Similarly, in a 1959-60 survey in Great Britain, 49 percent of married men and women had ever used condoms, and 44 percent had ever used withdrawal (294).

Oral contraceptives and the intrauterine device (IUD), both introduced in the 1960s, for the first time offered highly effective contraceptive methods for women and separated birth control from coitus. Patterns of contraceptive use in the US, Great Britain, and some other developed countries changed radically. In the US the percentage of contracepting married women who were using oral contraceptives grew to 24 in 1965 and then to 33 in 1976, while over the same period the percentage relying on condoms fell from 22 to 11, and the percentage relying on rhythm, from 11 to 5 (247). In Great Britain a similar shift occurred, but slightly later (388), as the table at right shows:

Method	% Currently Using: 1970	1983
Oral contraceptives	19	29
IUD	4	9
Condom	28	15
Withdrawal	14	4
Periodic abstinence	5	1
Vasectomy	4	12
Female sterilization		12

Although use of temporary male methods—condoms and withdrawal—and of periodic abstinence has declined in the US and Great Britain, use of vasectomy, the permanent male method, has increased somewhat in popularity since the early 1970s. This increase suggests that many men are still willing to take responsibility for contraceptive use. In the US, the percentage of married women age 15-44 whose partners had vasectomies increased from just under 8 in 1973 to over 10 in 1982 (27). In Great Britain between 1976 and 1983 the percentage of ever-married women reporting that their partners had vasectomies increased from 8 to 12—the same increase as for female sterilization (388).

In other developed countries, including Japan and some European countries, couples still rely primarily on temporary male methods, probably because female methods are difficult to obtain. In Japan condoms have been widely

Table 3. Current Use of Any Method of Contraception Among Currently Married Women Age 15–44 and Current Use of Contraceptive Methods Requiring Male Participation, Most Recent World Fertility Survey, Contraceptive Prevalence Surveys, and Other Representative Sample Surveys, 1974–1984

Region, Country & Year	% Using Any Method	% Using Any Male Method	% Using Condoms	% Using Vasectomy	% Using Rhythm	% Using Withdrawal
AFRICA						
Benin 1981–82	20	5	0	0	2	3
Botswana 1984	29	2	1	0	0	0
Burkina Faso (Ouagadougou) 1986[a]	13[b]	9	0	NA	7	1
Cameroon 1978	3	1	0	0	1	0
Ghana 1979–80	10	2	1	0	1	0
Ivory Coast 1980–81	3	0	0	0	0	0
Kenya 1977–78	7	1	0	0	1	0
Lesotho 1977	5	3	0	0	0	3
Mauritania 1981	1	0	0	0	0	0
Nigeria 1981–82	5	0	0	0	0	0
Senegal 1978	4	1	0	0	0	0
Senegal (Sine-Saloum) (rural) 1982	1	0	0	0	0	0
Somalia (urban) 1983						
Baydhaba	1	0	0	0	0	0
Hargeisa	3	0	0	0	0	0
Kismayu	0	0	0	0	0	0
Mogadishu	0	1	0	0	0	1
Sudan (north) 1987–79	5	1	0	0	1	0
Zaire (urban) 1982–84						
Kananga	12	3	0	0	2	1
Kinshasa	36	22	0	0	15	7
Kisangani	19	8	0	0	5	3
Lubumbashi	37	11	0	0	9	2
Zimbabwe 1984	40	9	1	0	1	7
ASIA & PACIFIC						
Bangladesh 1979–80	13	5	2	1	2	0
China 1982[c]	69	11	1	7	—3[d]—	
Fiji 1974	42	11	6	0	2	3
Hong Kong 1982[c]	72	24	15	1	8	NA
Indonesia (Java & Bali) 1976	28	4	2	0	1	0
Indonesia (urban) 1983						
Jakarta	44	8	3	0	4	1
Medan	36	10	3	0	4	3
Semarang	54	10	5	0	4	1
Surabaya	47	12	6	0	5	1
Ujung Pandang	33	5	1	0	3	1
Korea, Rep. of, 1985	70	27	7	9	7	4
Malaysia (peninsular) 1974	35	9	3	0	4	2
Nepal 1981	7	3	0	3	0	0
Pakistan 1975	5	1	1	0	0	0
Philippines 1978	39	24	4	1	9	10
Sri Lanka 1982	57	26	4	3	14	5
Thailand 1984	65	9	2	4	1	2
LATIN AMERICA & CARIBBEAN						
Barbados 1980–81	47	7	5	0	1	1
Bolivia 1983	26	15	0	0	14	1
LATIN AMERICA & CARIBBEAN (continued)						
Brazil						
Amazonas (urban) 1982	53	4	1	0	2	1
Northeast region 1980	37	9	1	0	4	4
Piaui 1982	35	5	1	0	2	2
São Paulo 1978	66	19	7	0	5	7
Southern region 1981	66	17	3	0	5	9
Colombia 1980	51	8	1	0	5	2
Costa Rica 1981	66	19	9	1	6	3
Dominican Republic 1983	47	5	1	0	1	3
Ecuador 1979	35	8	1	0	5	2
El Salvador 1978	34	4	2	0	2	0
Guatemala 1983	25	6	1	1	3	1
Guyana 1975	35	5	3	0	1	1
Haiti 1983	7	5	1	0	2	2
Honduras 1981	27	4	0	0	1	2
Jamaica 1983	52	11	8	0	1	2
Mexico 1979	40	7	1	0	4	2
Panama 1984	61	5	2	0	2	1
Paraguay 1979	39	8	2	0	4	2
Peru 1981	43	23	1	0	18	4
Trinidad & Tobago 1977	55	23	17	0	3	3
Venezuela 1977	49	14	5	0	4	5
MIDDLE EAST & NORTH AFRICA						
Egypt 1980	25	2	1	0	1	0
Egypt (rural) 1980	16	0	0	0	0	0
Jordan 1983	26	6	1	0	3	2
Morocco 1983–84	27	5	1	NA	2	2
Syria 1978	20	6	1	0	3	2
Tunisia 1983	42	8	2	0	5	2
Turkey 1978[e]	50	26	4	0	0	22
Yemen Arab Rep. 1979	1	0	0	0	0	0
DEVELOPED COUNTRIES						
Belgium (Flemish part) 1975–76[f]	85	43	7	0	13	23
Bulgaria 1976[f]	76	67	2	1	4	60
Denmark 1975[g]	63	27	25	NA	1	1
Finland 1977[f]	80	36	32	1	1	2
France 1977–78[f]	71	33	6	NA	6	21
Hungary 1977[h]	74	25	4	NA	4	17
Italy 1979[f]	78	58	13	NA	9	36
Netherlands 1982[i]	78	18	7	11	NA	NA
Norway 1977–78[f]	71	25	16	2	3	4
Poland 1977[g]	75	64	14	NA	31	19
Portugal 1979–80	70	35	6	0	4	25
Romania 1978[f]	58	53	3	NA	24	26
Spain 1977[f]	51	33	5	NA	6	22
Switzerland 1980[i]	70	14	8	NA	4	2
United Kingdom (England, Wales, & Scotland) 1983[f]	83	39	17	14	2	6
United States 1982–83[k]	68	24	10	10	3	1
Yugoslavia 1976[f]	55	42	2	NA	4	36

0 = <0.5
NA = not available

[a]All women age 15–49
[b]Excludes postpartum abstinence, 26 percent
[c]Among married women 15–49
[d]Includes suppositories
[e]Among all exposed women 15–49
[f]Among currently married, once-married women under age 45
[g]Data exclude sterilization
[h]Among all women under age 46
[i]Among currently married and cohabiting women born 1945–64
[j]Responses are of wives in survey of couples
[k]Excludes Alaska, Hawaii, and women in institutions

Source: London et al. (220) except Burkina Faso 1986 (430); China 1982 (63); Hong Kong 1982 (100); Korea 1985 (192); Thailand 1984 (59); Turkey 1978 (135); United Kingdom 1983 (388).

available since the 1950s, while oral contraceptives are still illegal for family planning (70, 400). Increasingly, Japanese couples who want family planning choose condoms. In 1950, 36 percent of couples who had ever used contraception had *at some time* used condoms (304). In 1986, 58 percent of contracepting couples were *currently* using condoms (305). World Fertility Survey data suggest that condoms, withdrawal, and rhythm are still widely used in several European countries. Indeed, they may be underreported in most surveys of women. In the mid-1970s withdrawal was the most common method in Bulgaria, Italy, Romania, Spain, and Yugoslavia, used by 26 to 60 percent of married women of reproductive age (see Table 3). The condom was the most popular method in Denmark and Finland (32). In Poland rhythm was most often used—by 31 percent. Vasectomy remains relatively unimportant in Europe except in Great Britain and the Netherlands.

Use of Male Methods in Developing Countries

In developing countries during the 1970s and early 1980s roughly one in every four contracepting couples relied on a method that requires male participation—condoms, vasectomy, rhythm, or withdrawal (see Table 2). This estimate is based largely on the World Fertility Survey and Contraceptive Prevalence Surveys, which interviewed married women of reproductive age (see Table 3 and **Population Reports**, *Fertility and Family Planning Surveys: An Update*, M-8, September-October 1985). There are substantial differences among regions and countries, however. Differences in availability of supplies and services are probably a major reason. Cultural differences also are important.

In sub-Saharan Africa many people do not have access to family planning services, and overall contraceptive use is slight. Even so, an estimated 40 percent of those using family planning use a male-oriented method—condoms, rhythm, or withdrawal, but not vasectomy. Also, postpartum abstinence for spacing between births, which requires male cooperation, is widely practiced (279).

Similiarly, in the Near East and North Africa overall contraceptive use levels are rather low. About one-quarter of married women of reproductive age use family planning. One-third of these couples, however, are relying on a method requiring male involvement, chiefly rhythm. As in sub-Saharan Africa, vasectomy is rare (see Table 2).

In most Asian and Pacific countries, where family planning services are more accessible, contraceptive use is widespread. Male methods are relatively less important than in Africa and the Near East. They are used by an estimated 11 percent of married couples of reproductive age, but this amounts to about one in every four contracepting couples (see Tables 2 and 3). Among developing countries, India, at an estimated 10 percent, has the highest percentage of married women of reproductive age relying on vasectomy (see Table 2). India is followed by China and South Korea at 9 percent. The figure of 9 percent for China is based on 1983 service statistics (303). The 1982 National One-per-Thousand Population Fertility Sampling Survey reported that 7 percent of married women age 15-49 relied on vasectomy. There was substantial variation among regions. Heavily populated Sichuan province reported the highest rate, at 31 percent (63, 309). In the 1985 Korea Fertility and Family Health Survey, 9 percent of married women age 15-44 reported relying on vasectomy (192), up three percentage points from 1979 (220). Several other Asian countries—Nepal, Sri Lanka, and Thailand—have reported vasectomy prevalence between 3 and 4 percent. Condom use was more common than in other developing areas, with the highest rates—4 to 7 percent—reported in Fiji, part of Indonesia, South Korea, the Philippines, and Sri Lanka. Rhythm and withdrawal are more common than in Africa and the Near East. The highest prevalence has been reported in the Philippines and Sri Lanka. In both countries 19 percent rely on one or the other of these two methods.

In Latin America and the Caribbean, as in Asia, an estimated 11 percent of couples of reproductive age in union use male-oriented methods, according to an estimate based on surveys of women in union. Again as in Asia, this accounts for one in every four contraceptors (see Tables 2 and 3). In most of the region the traditional methods, rhythm and withdrawal, are more common than condoms and vasectomy. In the most recent surveys in Peru 22 percent and in Bolivia 15 percent were using either rhythm or withdrawal—over half of all contraceptors in both countries. From 7 to 14 percent were using one of these methods in Colombia, Costa Rica, Ecuador, São Paulo and the southern region of Brazil, and Venezuela. Condom use varied from virtually zero in Bolivia and Honduras to 8 percent in Jamaica, 9 percent in Costa Rica, and 17 percent in Trinidad and Tobago. At the time of the surveys vasectomy services were not widely available in the region, and thus reported rates were negligible. Vasectomy services are becoming more available, and rates may now be rising.

***Sathi*—"companion"—is the condom brand marketed by the new social marketing program in Pakistan. Advertising emphasizes child spacing: "Until you want another child, rely on *Sathi*."**

New Surveys of Men Underway, Planned

Men have seldom been asked what they know and do about family planning. This lack of information has made it difficult to design programs for men. Now, however, a number of surveys of men are underway or planned, including the following:

- In Jordan husbands of women who participated in the 1983 Contraceptive Prevalence Survey have been interviewed. Results will soon be available (444).
- In Haiti a 1987 contraceptive prevalence survey will include a subsample of men (437).
- In Burundi and Mali, Demographic and Health Surveys will interview a subsample of men as well as women (450, 451).
- In The Gambia, Guatemala, and Zimbabwe, surveys of young men and women are underway (441, 444). A similar survey is planned for Jamaica during 1987 (444).
- In Nigeria, in Bendel State, a survey of men is in progress (445).

Survey questions cover a wide range of topics. Many are similar to those in surveys of women, covering basic family planning knowledge, attitudes, and practice. Some of the new surveys also cover attitudes toward sexual activity, information on pregnancies caused by the men, and knowledge of sexually transmitted diseases. Others are gathering detailed information on condom use. In Haiti, for example, one objective of the survey is to discover the reason for the discrepancy between the large number of condoms distributed through the family planning program and the low usage rate reported by women (437). The survey in Bendel State, Nigeria, will help determine the need for a program for men (445).

These surveys should yield valuable information about these countries. Still, surveys of men in many more countries are needed to guide programs and to paint a more complete picture of the attitudes and behavior of men around the world.

The relative importance of male methods may be declining in developing countries, a trend similar to that seen earlier in developed countries (see p. J-894). The trend is apparent in data from 18 countries, including Bangladesh, Colombia, Mexico, Morocco, and Thailand, that have conducted more than one national fertility and family planning survey. In all these countries contraceptive use among married couples is increasing and in some cases the percentage of married couples using a male method also is increasing. Yet among contraceptors the proportion using a male method has declined. The main reason is the sharp increase in female sterilization facilitated by the development and dissemination of simple female sterilization techniques starting in the early 1970s (220, 442).

Surveys of married women, such as the World Fertility Survey and most Contraceptive Prevalence Surveys, may underestimate use of male methods. Now a small but growing number of surveys are obtaining comparable information directly from men. In surveys of four Caribbean countries—Barbados, Dominica, the Dominican Republic, and St. Kitts-Nevis—and in Burkina Faso, men reported rates of condom use three or more times higher than reported by women (see Table 4). Similarly, in a 1983 survey in Bangladesh that interviewed husbands and wives simultaneously but in separate rooms and also married men and women without their spouses, men in both groups reported higher rates of condom use than women: 7 percent of husbands versus 4.5 percent of their wives, and 4.1 percent of men versus 2.8 percent of women among those whose spouses were not interviewed (16, 97). Surveys of women may underreport other male methods, too. Withdrawal may be underreported since some people do not think of it as a contraceptive method (310).

Use of Male Methods Among Young People

Among sexually active young men, the little information available suggests that, when they use contraception, they tend to use condoms or withdrawal rather than relying on a female method. So far three surveys have been conducted among young people in developing countries. Several more are planned or underway (see box, this page). In Monrovia, Liberia, 63 percent of young men said that they were sexually active. Of the 22 percent in this group who were using contraception, 13 percent were using condoms (415). In Ibadan, Nigeria, 60 percent of young men said that they were sexually active. Of the 42 percent who were using contraception, 24 percent were using condoms (197). In contrast to the men, young women in both African countries who were contracepting most often reported using oral contraceptives (197, 415) (see Table 5). In Mexico City 16 percent of young men said that they were sexually active. Of the 82 percent who were using contraception, 33 percent said they were relying on rhythm or withdrawal; 14 percent, on oral contraceptives; and 10 percent on condoms (245) (see Table 5). Young men in all three countries reported much higher rates of condom use than young women.

In the US, a condom or withdrawal is often the first contraceptive method that young people use. In a 1979 survey of women age 15-19 and men age 17-21 in metropolitan areas, less than one-half of either sex had used a contraceptive method at first intercourse, but nearly three-quarters of those who had done so had used condoms or withdrawal (426). Among US women age 15-44 surveyed in 1982, 41 percent of those who had used some contraceptive method at first intercourse had used condoms; 24 percent had used withdrawal (246). In a 1986 national survey of US adolescents age 12-17, nearly half of the sexually active boys and one-quarter of the sexually active girls reported that condoms were the contraceptive method they most often used (296).

CONTRACEPTION FOR MEN

To be effective over the long term, most family planning methods depend on mutual consent of both the man and woman. Ideally, the couple should decide together, with the advice of health care providers if necessary, which

Table 4. Percentage of Men and Women Reporting Current Use of Specific Methods of Contraception, Representative Sample Surveys, 1980–1986

Country	Ref. No.	Year	Sex	Any Method	OCs	Condom	Diaphragm	Foam	Injectable	IUD	Sterilization Female	Sterilization Male	Rhythm	Withdrawal
Barbados	214	1982–83	M[a]	38	11	11	1	3	1	2	6	1	1	2
	257	1980–81	F[a]	37	13	4	—2—		2	3	12	0	—1—	
Burkina Faso (Ougadougou)	430	1986	M[b]	35[c]	3	4	NA	NA	0	1	NA	NA	22	3
			F[a]	13[c]	2	0	NA	1	0		NA	NA	7	1
Dominica	214	1982	M[a]	31	9	10	0	0	2	0	5	0	1	2
	30	1982–83	F[d]	37	12	3	—1—		7	2	11	0	1	1
Dominican Republic	88	1984	M[e,f]	22		9						0	6	7
	87	1983	F[a]	28	5	1	—0—		0	2	17	0	1	1
St. Kitts-Nevis	214	1982–83	M[a]	40	15	17	0	2	1	1	1	0	1	1
	169	1984	F[d]	33	16	5	—2—		2	3	—2—		—3—	

OCs = oral contraceptives
0 = < 0.5
[a]Age 15–49
[b]Age 18–60
[c]Excludes postpartum abstinence, M: 25 percent; F: 26 percent
[d]Age 15–44
[e]Age 15–59
[f]Only male methods reported

Table 5. Percentage of Sexually Active[a] Youth Reporting Use of Specific Contraceptive Methods, Liberia, Mexico, and Nigeria, 1981–1985

Country & Year (Ref. No.)	Sex	Sexually Active	Using Any Method	OCs	Condoms	Injectable	IUD	Rhythm/ Withdrawal	Other
Liberia 1984	M	63	22	7	13	NA	1	2[b]	0
(415)	F	57	38	29	2	NA	5	2[b]	1[c]
Mexico 1985	M	16	82	14	10	7	3	33	16[c]
(245)	F	4	75	15	2	8	8	35	6[c]
Nigeria 1981–82	M	60	42	11	24	NA	NA	5	3
(197)	F	41	62	38	13	NA	NA	7	4

Note: Liberia: Stratified household survey of nonstudents and classroom survey of students, all age 14–21, in Monrovia. Mexico: Probability sample survey of households with youth age 15–19 in Mexico City. Nigeria: Survey of self-selected respondents age 14–21 in Ibadan area.
NA = not available
[a]Reporting coitus at least once a month
[b]Includes folk methods
[c]Diaphragm, foam, cream, jelly

method is best for them at each stage of their reproductive lives—regardless of which partner actually uses the method. Still, three methods are considered primarily male methods: the condom, vasectomy, and withdrawal. Another method, periodic abstinence, or Natural Family Planning, depends on both partners agreeing to abstain from sexual intercourse during the woman's fertile period.

The Condom

The condom has been used for contraception for at least 250 years and as protection against sexually transmitted diseases even longer than that (114, 117, 119, 237, 312, 341). Today high-quality condoms are available in a range of sizes, thicknesses, shapes, textures, and colors to appeal to different customers. They include plain and reservoir-ended, straight-sided and shaped, smooth and textured, dry and lubricated brands. Most manufacturers produce two sizes. Modern condoms are strong and durable. In temperate climates they have a shelf life of three to five years when properly stored. They deteriorate faster at higher temperatures, however, and particularly when exposed to humidity, light, oxygen, and certain chemicals (319) (see **Population Reports**, *Update on Condoms—Products, Protection, Promotion*, H-6, September-October 1982).

A recent addition to the range of condoms is the spermicidal condom. The lubricant contains the spermicide nonoxynol-9, commonly used in spermicidal foam, gels, suppositories, and sponges. This type of condom has been available in the United Kingdom since 1977 through London International Group (formerly London Rubber Company), which now also markets it in several European and other countries including Thailand (39). The first brand in the US was introduced in 1982 by Schmid Laboratories (3, 134). Schmid now exports it to several developing countries including Costa Rica, Panama, and the Philippines (23). Ansell Americas markets a similar condom in the US and other countries. It has also started marketing, in several European countries and Venezuela, a condom containing a larger amount of spermicide, placed inside the condom rather than mixed with the lubricant (317).

About 46 million couples now use condoms. Of these, 60 percent live in developed countries, mainly in Japan, the US, and the United Kingdom; 40 percent live in developing countries, mainly in Asia (see Table 2).

Condoms have many advantages:

- They are simple to use.
- They are safe.
- They are effective when used correctly at every coitus.
- They help to prevent transmission of sexually transmitted diseases, including the infection that causes acquired immune deficiency syndrome—AIDS.
- They do not need any medical supervision.
- They can be obtained cheaply, often through a variety of commercial outlets including shops, vending machines, and mail-order as well as in clinics (see pp. J-906–908).

Condoms can be very effective in preventing pregnancy. Although there are no data available on condom breakage during actual use, pregnancy rates as low as 0.4 to 2 pregnancies per 100 couple-years of use have been recorded (143, 231, 290, 291, 381, 395). These low rates suggest that condoms rarely break during use.

Failure rates are often higher, however—between 3 and 12 per 100 couple-years in major studies (128, 394, 395). Unintended pregnancies occur primarily because couples do not use condoms consistently. Probably because some couples use condoms more consistently than others, failure rates vary with such user characteristics as age, desire for more children, and length of use (122, 124, 290, 291, 394, 395). Some men may use condoms inconsistently because they find that the condom reduces sensitivity. Also, some couples dislike interrupting sexual relations to put on the condom.

Condoms Protect Against Sexually Transmitted Diseases

In addition to preventing pregnancy, condoms protect against sexually transmitted diseases, including AIDS (see **Population Reports**, *AIDS—A Public Health Crisis*, L-6, July-August 1986). Both men who use condoms and their partners have lower rates of gonorrhea, trichomoniasis, syphilis, and herpes than those who do not use condoms or who use them only occasionally (31, 91, 141, 181, 292, 352). Also, in vitro studies show that herpes virus and human immunodeficiency virus, which causes AIDS, do not pass through the condom membrane (10, 71, 72, 73, 74, 314). Spermicidal condoms or spermicide used with condoms probably offers added protection in the rare event that a condom breaks. Spermicides inactivate many disease-causing organisms (56, 68, 76, 147, 174, 308, 314, 359).

Many health workers are now encouraging both heterosexual and homosexual couples to use condoms to protect against sexually transmitted diseases and AIDS in particular (2, 125, 234). In the US and UK, television stations and major newspapers and magazines are beginning to accept condom advertisements that stress AIDS prevention (see p. J-906).

Other Benefits of Condoms

As well as protection from unwanted pregnancy and sexually transmitted diseases, condoms have other benefits:

- For women, condoms can protect against pelvic inflammatory disease (PID). PID is caused by sexually transmitted disease organisms that pass through the cervix into the upper reproductive tract (207). Condom use also may prevent or slow the development of cervical cell abnormalities that could lead to cervical cancer (328).
- Condoms used in late pregnancy may prevent amniotic fluid infection, which can lead to premature delivery and can endanger the life of the newborn child (255, 256).
- Condoms help to prevent premature ejaculation, since they reduce sensitivity somewhat during intercourse (117, 228).

In the last two or three years condoms may have become more popular. This is at least partly because condoms are now more available, and marketing campaigns are creating a more favorable image (see p. J-907). Also, more people are becoming aware of the protection that condoms offer against AIDS and other sexually transmitted diseases. In the US, for example, estimated annual retail sales increased 25 percent between 1982 and 1984, rising from $225 million to $282 million (US). Sales continue to increase (82). The US Agency for International Development, major supplier of condoms to family planning programs in developing countries, has more than doubled its purchases, from 1.5 million gross in fiscal year 1981-82 to 3.9 million in fiscal year 1985-86 (318). This increase reflects growing demand from developing countries. Both India and China are increasing their production capacity in anticipation of greater demand (342).

Vasectomy

Vasectomy—surgical sterilization for men—is safe, effective, and simple. As a permanent family planning method, it is well-suited to couples who want no more children. Failure rates are very low, and complications are rare. Vasectomy is *not* castration and does *not* affect sexual activity. Despite its safety and effectiveness, however, in most of the world vasectomy is not widely used. Worldwide an estimated 41 million women of reproductive age have partners with vasectomies, but most of them are in four countries—the US, the UK, China, and India (see

¿OTRO?...
LA DECISION ES TUYA....
UNA POSIBILIDAD
LA VASECTOMIA
LA DIFERENCIA ENTRE TENER HIJOS Y SER PADRE
COMIENZA CON LA PLANIFICACION
ACUDA A SU CENTRO DE SALUD, CLINICA U HOSPITAL MAS CERCANO
SECTOR SALUD

"Another one? It's your decision . . . . Vasectomy is one possibility," says this Mexican poster. As services become more available, more men in Latin America are choosing vasectomy.

Table 2). By comparison, about 100 million married women of reproductive age have been sterilized themselves (see **Population Reports**, *Minilaparotomy and Laparoscopy: Safe, Effective, and Widely Used*, C-9, May 1985). Is the reason for little use of vasectomy a lack of motivation among men or lack of information and services? Probably both. Where vasectomy programs are available and men can receive accurate and sympathetic information, counseling, and follow-up, more and more are choosing vasectomy (see pp. J-908–911).

Vasectomy is a relatively minor surgical procedure that can be performed under local anesthesia in 5 to 15 minutes. A small incision is made in the scrotum, and the vas deferens, the tube that carries sperm from each testes to the urethra, is severed. Both of the severed ends are sealed, usually by electrocoagulation or ligation. The procedure is repeated on the other vas. The small scrotal incision is closed, and after an hour or two of rest, the man can return home. Sperm are produced as before, but because the vasa are blocked, sperm cannot pass into the ejaculate. (See **Population Reports**, *Vasectomy—Safe and Simple*, D-4, November-December 1983.)

Pregnancy rates after vasectomy are very low—usually less than one percent. Thus vasectomy is one of the most effective methods of family planning (218, 332). Most pregnancies occur in the first two or three months after the procedure. This is because sperm remain in the reproductive tract on the urethral side of the obstruction. Men may have to ejaculate 15 to 20 times before all sperm are expelled (126, 168, 188). Therefore couples must use another contraceptive method for 15 to 20 ejaculations, or men must have their semen checked for sperm at a laboratory six to eight weeks after the vasectomy.

Serious complications after vasectomy are rare (150). Shortly after the procedure about half of men experience local bruising, swelling, and pain—all of which subside in a few days. More severe complications—hematoma (a mass of clotted blood); epididymitis (inflammation of the epididymis, the coiled tube beside the testes through which sperm pass to reach maturity), or infection—occur in less than 5 percent. Careful surgical and sterile technique minimizes even this small risk (218).

Sperm granulomas sometimes form after vasectomy, either at the vasectomy site or in the epididymis. These nonbacterial abscesses, consisting largely of sperm, skin cells, and lymphocytes, are caused by sperm leaking into surrounding tissue. While most are tiny and cause no problem, a small proportion of men with granulomas experience some discomfort. This usually subsides spontaneously (339). More serious are channels that occasionally develop through the granuloma. The channels form a new passageway for sperm and restore fertility (144). Also, granulomas in the epididymis can prevent successful vasectomy reversal by obstructing the passage of sperm or by damaging sperm cells (345, 356). Granulomas at the vasectomy site, however, act as a reservoir for sperm and may help to prevent epididymal granulomas (345, 356).

No long-term adverse effects of vasectomy have been observed. Recent, large epidemiologic studies in men have laid to rest fears that vasectomy might increase the risk of heart and other circulatory system disease or disorders of the immune system. It had been suspected that these problems might result from the development of sperm antibodies after vasectomy, since studies of monkeys found an increase in atherosclerosis (build-up of fatty materials on artery walls) after vasectomy (428, 431). The largest and longest study compared over 10,500 vasectomized men in the US with an equal number of controls. It found that, 5 to 10 years after the procedure, vasectomized men were no more likely to develop heart disease, cancer, or disorders of the immune system than men who had not been vasectomized (226, 227). A recent community study in South Korea, where lifestyles and diets differ markedly from those in the US, confirms that vasectomy has no adverse effect on the cardiovascular system (311).

A few men request vasectomy reversal. Using sophisticated surgical techniques and instruments such as an operating microscope, surgeons have been able to rejoin the vasa and restore fertility in about 50 percent of selected cases (22, 185, 209, 278, 293, 355). Since reversal requires difficult and expensive surgery, however, and success cannot be guaranteed, vasectomy should be considered a permanent contraceptive method.

New Vasectomy Techniques

Research is underway to develop new methods of vasectomy that are even safer, easier to perform, and easier to reverse than current techniques. The most promising approaches are:

- Reaching the vasa through a puncture rather than an incision;
- Blocking only one end of each vas;
- Nonsurgical blocking of the vasa with chemicals, and
- Implanting devices into the vasa that block passage of sperm.

Researchers in China have developed a vasectomy technique that can be performed with a puncture, not an incision. This technique reduces bleeding, speeds healing, and appeals to men who fear the incision. A specially designed fixing clamp encircles and holds the vas without penetrating the skin. The scrotum and vas sheath are punctured with a sharp-ended hemostat and stretched open. The vas is then lifted out of the scrotum and sealed by ligation or coagulation. This procedure causes very little damage to scrotal tissue. Because the puncture is much smaller than the standard 0.5 to 1.0 cm vasectomy incision, the wound heals rapidly without sutures. Less than one percent of men experience hematomas or skin infections. Since 1971 between 4 and 8 million men in China have undergone vasectomy by this technique (151, 152). In 1986 the Association for Voluntary Surgical Contraception conducted the first training course in this technique for non-Chinese physicians in Bangkok. One physician each from Bangladesh, Nepal, Sri Lanka, and the US attended, as did several from Thailand (151).

Another modification of standard vasectomy procedure is open-ended vasectomy, in which the testicular end of the vas is left unsealed while the abdominal side is sealed as usual. The two cut ends of the vas are separated by the muscular vas sheath to eliminate the possibility of their rejoining. Spontaneous rejoining of the ends is as rare as with conventional techniques—occurring in less than one percent. In a large comparative trial men vasectomized with the open-ended technique had about half the rates of epididymal congestion and of painful granuloma as men

Research on New Male Contraceptive Methods

Researchers are seeking an effective, easily used, coitally independent, reversible contraceptive for men. Research is concentrating on:

- hormonal suppression of sperm production and
- chemical interference at the sites of sperm production and maturation.

Hormonal Suppression of Sperm Production

Analogues of luteinizing-hormone releasing hormone (LHRH) can suppress sperm production by interfering with the action of LHRH. LHRH, which is produced in the hypothalamus, controls the release of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) from the pituitary. These in turn stimulate the release of testosterone and other steroid hormones necessary for sperm production.

The most promising LHRH analogues to date are LHRH antagonists—substances similar to LHRH that block its action (264, 401, 416). Two recently produced antagonists completely stopped sperm production in monkeys (17, 403). Only one, preliminary clinical trial, involving nine men, has been carried out so far. In it the antagonist lowered testosterone levels substantially. Changes in sperm levels were not measured (232).

A major difficulty with LHRH analogues is that, by suppressing testosterone production, they also suppress men's libido and potency and affect secondary sex characteristics. To counteract this, another hormone, usually a testosterone ester, must be taken along with the LHRH analogue (36).

Steroid hormones—androgens, progestins, and estrogens—also inhibit FSH and LH production in men and so can suppress sperm production. Most promising are androgens given alone or combined with a progestin.

Several clinical trials indicate that testosterone esters such as testosterone enanthate and testosterone cypionate can reversibly suppress sperm production without causing major side effects (28, 321, 401, 416). The World Health Organization (WHO) is planning the first clinical trial of a testosterone ester (33, 46).

Two major problems remain. First, complete sperm suppression cannot be achieved in all men. A 200 mg per week dose of testosterone enanthate, for example, completely stops sperm production in only 50 percent and reduces it somewhat in another 40 percent of men (289). Second, the testosterone esters so far tested must be given as weekly injections, which is not practical for most men. One possible solution successfully tested in monkeys is injectable microspheres, which slowly release the drug (212, 213). The US National Institute of Child Health and Human Development is about to begin testing microspheres to deliver testosterone to men whose testes produce too little of the hormone (49). Another possible solution is development of a longer-acting ester (28). WHO has recently prepared a series of new esters. A single injection of one of these maintained normal testosterone levels in castrated monkeys for four months (83).

Several clinical trials have tested a variety of progestin-androgen combinations. The best sperm suppression and fewest side effects come with the progestin depot medroxyprogesterone acetate (DMPA) and either testosterone enanthate or testosterone cypionate. DMPA also is marketed as an injectable contraceptive for women (see **Population Reports**, *Long-Acting Progestins—Promise and Prospects*, K-2, May 1983). No progestin-androgen combination completely suppresses sperm production, however (28, 83, 288, 401, 416). Testosterone plus estradiol is an alternative. In monkeys this combination suppressed sperm production, causing infertility without side effects (96).

Clinical studies also have been conducted with a 19-nortestosterone (19NT) ester with both progestogenic and androgenic activity (190, 401). Although no more effective at suppressing sperm production than testosterone esters, the 19NT ester is longer lasting. Injections could be given every three weeks (190).

Inhibin is a peptide, produced in the testes, that inhibits its release of FSH. Theoretically, it should suppress sperm production without affecting testosterone secretion. Thus libido and potency should be maintained without androgen supplements (321). After many years of research, in 1985 several research groups isolated inhibin and identified its basic structure (301, 401). Work is now underway, using recombinant DNA technology, to produce larger quantities so that it can be tested in animals (301).

Chemical Interference With Sperm Production

Gossypol, derived from the cotton plant, interferes with sperm production without affecting hormone levels. Chinese reports in the late 1970s (258) generated hope for a major breakthrough in male contraception. Now clinical trials have found that gossypol has two major adverse effects: (1) some men develop hypokalemia (low potassium concentration in the blood), and (2) sperm production in some men does not resume when they stop taking gossypol. As a result, clinical trials are now limited, and research is focused on finding whether a nontoxic component of gossypol or a nontoxic analogue might be effective and reversible (83, 401). Other compounds that directly interfere with sperm production have been tested but discarded because of toxicity (321, 396, 401), but research on still others continues.

Other Approaches

Scientists also have looked at immunological approaches to male contraception. Immunization against FSH has failed to suppress sperm production in monkeys, however (263). Another approach—the induction of antisperm antibodies—currently appears more feasible in women than men (19, 20, 123).

In summary, research toward a new male contraceptive has a long way to go. Questions of effectiveness must be resolved, and a convenient delivery system developed. Also, any new drug must meet the increasingly stringent requirements of regulatory agencies.

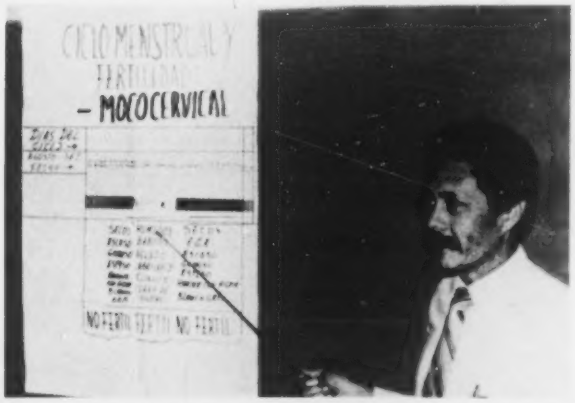
vasectomized with the standard technique (93). Because less tissue is damaged, the procedure could be more reversible than standard vasectomy techniques (93, 249, 354). Increased sperm leakage might lead to more sperm antibody formation, however. Given epidemiological evidence that these antibodies cause no health problems, this need not cause concern, but it may deserve investigation (18, 248).

Blocking the vas with chemicals is done primarily in China. Since 1972 over 500,000 men have undergone chemical sterilization (216). The procedure involves no incision. Instead, the scrotum and vas sheath are punctured with a needle, and a mixture of phenol and cyanoacrylate is injected directly into the lumen of each vas. Scar tissue develops, blocking passage of sperm. The failure rate of 2.4 percent, reported in a study of 577 men, is higher than rates with surgical vasectomy techniques, however (152). More research is needed to determine whether these chemicals have any long-term side effects.

Research is also underway on devices that can be implanted in the vas and later removed to restore fertility. Over 20 different devices have been investigated in the US, South Korea, and India since the 1970s. Difficulty inserting the devices and completely blocking sperm complicated most of these efforts (118). Currently, the most promising device is the Shug. The Shug consists of two silicone plugs connected by a nylon thread. The two plugs are inserted into the lumen of each vas with a needle while the thread stays outside the vas sheath. The plugs can be removed by making two small incisions in the vas and pulling the thread (423). In studies with animals, the Shug blocked sperm completely and was easy to insert and remove. When the device was removed after several months, sperm counts returned to normal in all animals (424). Preliminary clinical trials in men are scheduled to begin by mid-1987 in Brazil and the US. They will test the effectiveness of the Shug over a 3- to 6-month period (422).

Periodic Abstinence

Periodic abstinence involves avoiding sexual relations during the fertile portion of a woman's menstrual cycle. It requires full cooperation and participation of both husband and wife. The oldest and most widely known formal method, calendar rhythm, was developed in the 1930s (189, 273). Beginning in the 1950s, newer methods have been developed and are now often called Natural Family Planning (38, 108, 219). Currently an estimated 17 million couples worldwide are using some form of periodic abstinence—mostly a simple form of calendar rhythm consisting of abstaining from intercourse around the middle of each menstrual cycle (see Table 1).



In Costa Rica an instructor for the Centro de Orientación Familiar San José explains the changes in cervical mucus that accompany the fertile period of the menstrual cycle. Periodic abstinence, or Natural Family Planning, requires not only monitoring signs of fertility, such as cervical mucus changes, but also full cooperation of both partners to abstain from sex when indicated. (JHU/PCS)

To practice periodic abstinence, couples must be able to predict the fertile period. Calendar rhythm involves calculations based on a woman's previous menstrual cycles to estimate the time of ovulation (225, 330). With the newer methods, couples monitor physiological changes that occur with ovulation—a rise in basal body temperature, an increase of slippery cervical mucus, changes in the position and texture of the cervix, and other signs including intermenstrual bleeding, midcycle abdominal pain (*Mittelschmertz*), and breast tenderness (187). The basal body temperature method and the cervical mucus method (also known as the Ovulation Method or the Billings Method) rely primarily on one sign to indicate ovulation (37, 38, 224, 225). The sympto-thermal method, in contrast, uses various signs, especially temperature and cervical mucus changes, to estimate the fertile period (187, 331). With all these techniques couples must learn to monitor the various signs of fertility, interpret them correctly, and abstain during the fertile period. No current technique predicts the fertile period precisely. Therefore couples must abstain longer than the three to four fertile days in each cycle. Some couples use barrier methods around the time of ovulation rather than abstain—a practice sometimes called Fertility Awareness. In Japan many couples use condoms this way (70, 305, 432).

The effectiveness of periodic abstinence methods depends on the couples' motivation, their ability to detect signs of the fertile period, and, with calendar rhythm, the regularity of the menstrual cycle. Highly motivated couples who have received good instruction often can use the methods very successfully. Generally, however, pregnancy rates are higher than with most other family planning methods. In major recent studies about 15 percent of women using the sympto-thermal method became pregnant within a year, as did about 25 percent of those using the cervical mucus method (177, 179, 233, 325, 399, 417).

Periodic abstinence carries no health risks for users apart from those of unplanned pregnancies. Questions have been raised, however, about possible risks to pregnancies accidentally conceived during use of these methods. Such conceptions are likely to occur when couples "take chances" either very early or very late in the fertile period. At these times sperm or ova may remain in the genital tract for several days before fertilization—a condition linked to birth defects and pregnancy wastage in animals (42, 44, 130, 357). Studies in humans have yielded conflicting results. In a recent US cohort study 2 of 338 children born after failures of periodic abstinence had trisomy 21, a type of chromosomal defect. This is almost five times the rate among nearly 12,000 children whose parents had not used contraception before conception. Chromosomal examinations were conducted only for children with clinical abnormalities (140). Other recent studies, however, find no excess risk of birth defects in the children of periodic abstinence users (194, 418). Similarly, some studies report higher than expected rates of spontaneous abortion in periodic abstinence users (129, 131), while others do not (271, 418).

More precise methods of pinpointing ovulation could make estimates of the fertile period more accurate and reduce the amount of abstinence required. This improvement would help make periodic abstinence methods more popular and more effective. Several electronic thermometers and calculators for measuring basal body temperature and figuring cycle length are now on the market in some developed countries (270, 315). Whether these devices are easier to use and more accurate than standard thermometers and manual calculations has not been studied, however. Several tests measuring concentration of luteinizing hormone in urine are now available for home use (75, 270, 315). These tests are designed to help subfertile women achieve pregnancy. They are still too expensive and impractical for routine use to prevent pregnancy.

Research is also underway on:

- Measuring the amount of cervical and vaginal secretion with a calibrated disposable aspirator. Preliminary research shows that increases in the *amount* of cervical and vaginal secretion correlate more precisely with the fertile phase of the menstrual cycle than changes in the *quality* of cervical mucus or the position and texture of the cervix (416).
- Identifying changes in concentrations of glucose, sodium, and potassium in saliva during the menstrual cycle (416).
- Developing a urine test to measure the hormone pregnanediol-3-glucuronide (98).
- Developing a technique for measuring prolactin in blood as a sign of returning fertility in breast-feeding women (98).

Withdrawal

Coitus interruptus—or withdrawal, as it is commonly known—may be the oldest means of preventing pregnancy. A Biblical passage (Genesis 38:8-9) may be referring to its use: Onan "spilled his seed on the ground" to avoid impregnating his deceased brother's wife, whom he had been ordered to marry. Islamic legal writings dating back several centuries sanctioned its use (253). The method was widely used in past centuries in Europe, contributing to the demographic transition (310, 313). Today an estimated 35 million couples rely on withdrawal (see Table 2).

Couples who use the method engage in sexual intercourse until ejaculation is impending. Then the man withdraws his penis from the woman's vagina, and ejaculation occurs completely away from her vagina and external genitals. The method has several advantages:

- It is available in any situation at no cost.
- It requires no supplies.
- It does not require help from health care workers.

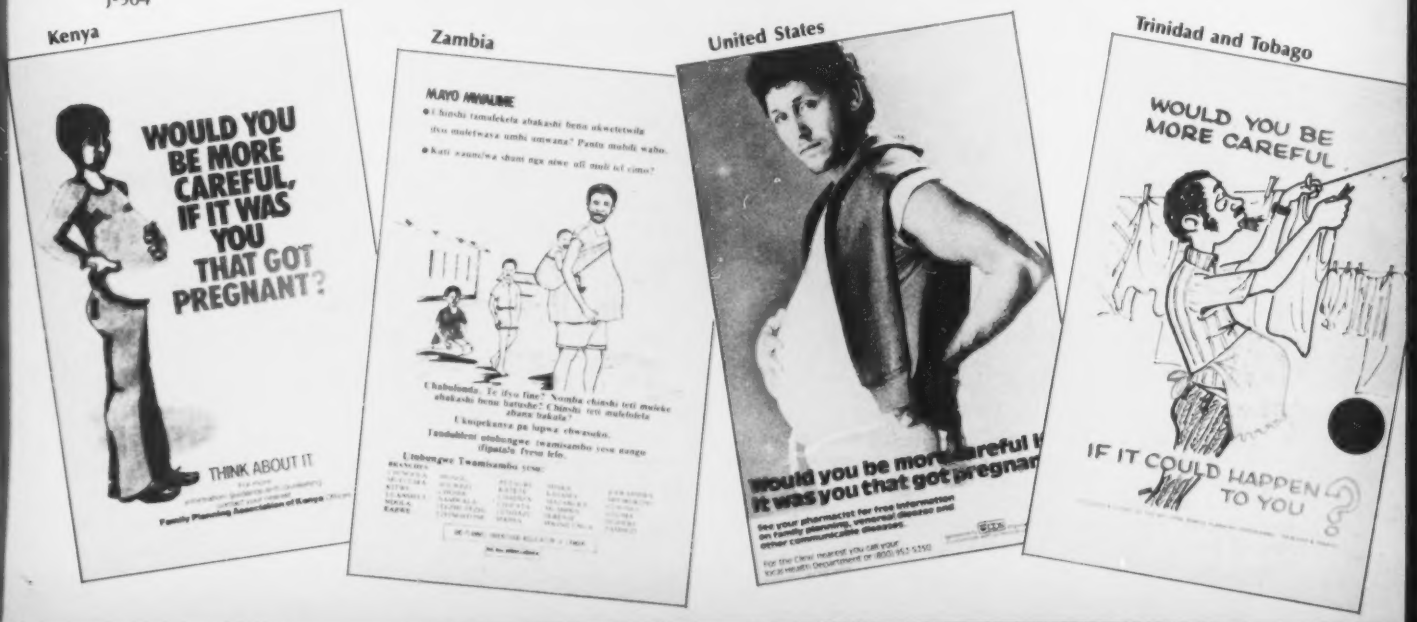
Many health care personnel dismiss withdrawal as a contraceptive method because it generally has a higher failure rate than such methods as voluntary sterilization, oral contraceptives, IUDs, condoms, diaphragms, and spermicides. About 23 pregnancies per 100 couple-years of use may be typical (409, 410). A rate as low as 6.7 pregnancies per 100 couple-years has been observed, however, in a study of married British women age 25-39 (395). The usual reason for failure is that the man does not withdraw in time.

Another reason sometimes suggested for unintended pregnancies is that live sperm may be present in pre-ejaculatory fluid. This is unlikely, however. A study examining pre-ejaculatory fluid found no motile sperm (66).

A disadvantage of the method, in addition to its usually high failure rate, is that it interrupts sexual relations. Despite its disadvantages, however, withdrawal is a considerably better way to avoid pregnancy than using no contraception, and some couples apparently learn to use it fairly successfully.

FAMILY PLANNING PROGRAMS FOR MEN

Until recently, most family planning programs have neglected men. Since women bear children and currently have more contraceptive choices, policy-makers and program personnel have often assumed that family planning is primarily a woman's concern. When family planning services are combined with maternal and child health services, as in many Asian and African countries, this view is reinforced. Lack of information and services for men, more than lack of interest on their part, has probably kept


Kenya
WOULD YOU BE MORE CAREFUL, IF IT WAS YOU THAT GOT PREGNANT?
THINK ABOUT IT
Family Planning Association of Kenya
Zambia
MAYO MWALIBE
United States
Would you be more careful if it was you that got pregnant
Trinidad and Tobago
WOULD YOU BE MORE CAREFUL
IF IT COULD HAPPEN TO YOU

many men from taking a more active role in family planning.

Now, however, many contend that programs can serve family needs better by addressing men as well as women (4, 53, 85, 120, 133, 160, 161, 164, 371, 405). Thus, even though emphasis on services for women remains strong, a growing number of agencies and organizations are starting projects for men. Since few have been evaluated, little is yet known of their impact.

Developing Family Planning Services for Men

Programs for men use a variety of strategies. While it is not yet clear which are most effective, any program for men should be designed on the same principle that applies to delivering services to any other group: Design the services to suit the intended users. In practice, this means offering services that men find to be high-quality, comfortable to use, and accessible.

The first step is to gather information. Questions that need answers include:

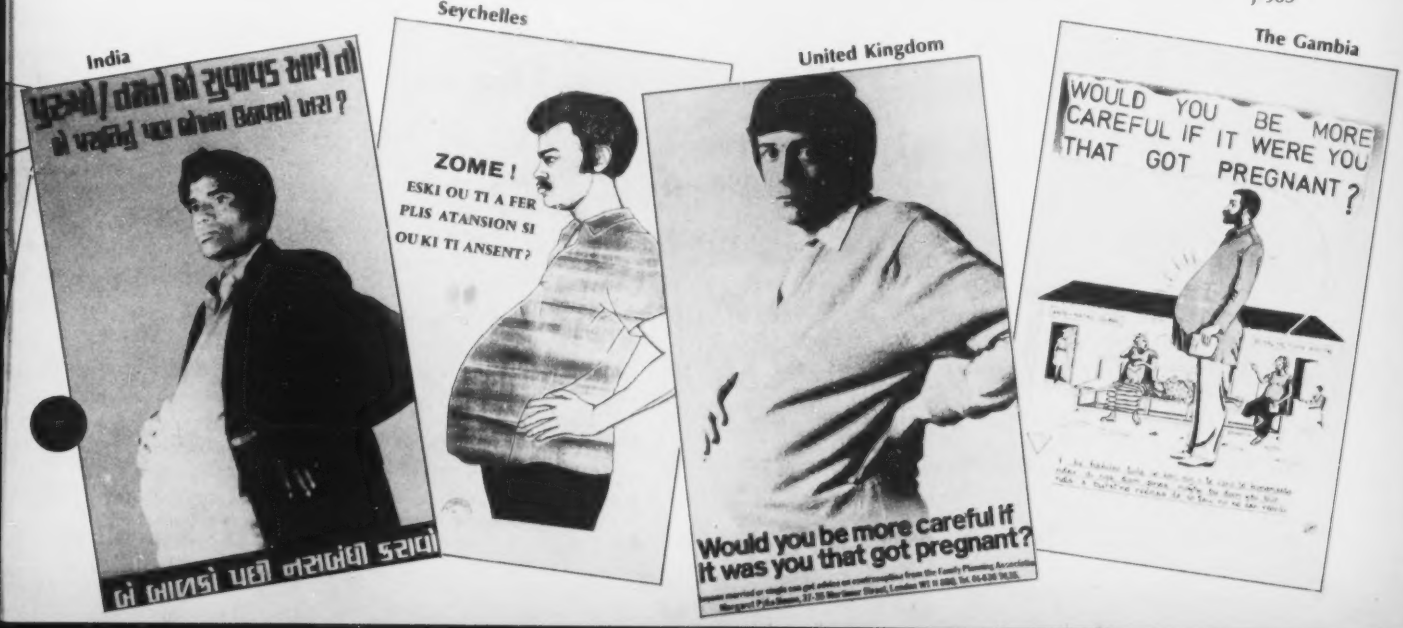
- What do men know about family planning? Do they know where to obtain services? What are their attitudes? What messages will appeal to men? What media will reach them? What information and services do men want? How do they want supplies and services delivered?
- What services are already available for men? Are they well-publicized? Are they affordable? Are they utilized? How could they be improved?

Much of this information can be obtained through small surveys and focus-group discussions. With this information, an organization can plan services that men will use.

Appropriate Services

Seeking to serve men better, various family planning organizations have applied the following principles:

- Services or products must be well-publicized. In São Paulo, Brazil, when Promação de Paternidade Responsável (PRO PATER) advertised vasectomy services in male-oriented magazines, the number of procedures performed each week increased by 60 percent, and many more men inquired about vasectomy (see p. J-910).
- Publicity should appeal to men's needs and desires, making men feel that their patronage is important. Messages should emphasize how men benefit from family planning and how using family planning can enhance their esteem. These have been the themes of multimedia campaigns by the Family Planning Association of Hong Kong, for example (see box, p. J-910). Messages often appeal to men's sense of responsibility to support their families. Topics of special interest to men, such as sports, can be tied to family planning. In Mexico, for example, a new contraceptive social marketing program launched its condom brand in 1986 with advertising tied to the Soccer World Cup matches taking place in Mexico City at the time (362) (see photo, p. J-908). Professional services and high-quality products, both of which are important to men, can also be emphasized in advertising campaigns.
- Training men to counsel other men provides a sympathetic source of information and advice. Family planning associations in Indonesia and Guatemala, for example, have used male counselors successfully (35, 157).
- Satisfied users can be enlisted to promote male-oriented methods and to counsel other men. This may be particularly important for vasectomy. US research shows that most men decide on vasectomy only after talking to other men who have had vasectomies (251, 252). In a number of programs field workers and clinic personnel who have had vasectomies have proved to be convincing proponents of the method and good counselors (25, 173, 251). A project in Sri Lanka has used vasectomy clients to promote vasectomy among other men (104).
- Medical, counseling, and administrative personnel should be trained to encourage men's participation, to understand what information, advice, and services men want, and to promote male-oriented family planning methods.
- When resources permit, separate family planning clinics for men can encourage more participation. PRO PATER in Brazil and the Asociación Pro-Bienestar de la Familia Colombiana (PROFAMILIA) in Colombia found that the number of men wanting vasectomy increased rapidly when high-quality, professional


India
Seychelles
ZOME !
ESKI OU TI A FER
PLIS ATANSION SI
OU KI TI ANSENT?
United Kingdom
Would you be more careful if it was you that got pregnant?
The Gambia
WOULD YOU BE MORE CAREFUL IF IT WERE YOU THAT GOT PREGNANT?

services were provided in clinics established specifically for men. Offering comprehensive reproductive health services, including diagnosis and treatment of infertility and sexually transmitted diseases, can make the clinics even more attractive to men (see p. J-909).

- Clinics that serve both men and women also can encourage more men to attend. Clinic surroundings should be comfortable and hospitable for men. Leaflets and posters should be designed to interest men as well as women. Setting aside some clinic hours each week just for men also may improve attendance.
- Like all other family planning services, services for men should respect individual privacy. In some settings, vending machines dispensing condoms may prove popular, as long as the machines can be kept fully supplied and in working order.

Accessible Services

Men must be able to obtain the services they want, when they want them.

- The more methods available, the more men can be served. If some services, such as vasectomy or instruction in Natural Family Planning, cannot be offered where other services are available, men should be referred to locations that are as convenient as possible.
- Services and supplies should be readily available—in the community, the workplace, or even brought to the home. Because condoms are easy to distribute, they can be offered in many locations, from pharmacies and grocery stores to bars, tea shops, and barber shops. Program efforts to expand condom distribution have ranged from nationwide social marketing programs (see pp. J-906–908) to informally encouraging local stores to stock condoms, as the African Medical and Research Foundation has done in Ghana (236).
- Services and supplies should be available at times convenient for men—usually outside working hours. In Bangkok, Chulalongkorn Hospital began special vasectomy clinics during the weekends in mid-1976. The number of clients rose from 58 per month in 1975 to 161 per month in the first half of 1978 (90).

Any measures taken to increase men's involvement in family planning will be more effective if (1) they are continuous, and (2) they are monitored, evaluated, and modified as needed.

DISTRIBUTING CONDOMS

Condoms are probably the best known and certainly the most often used male family planning method. Condoms are made available in a variety of ways:

- established commercial channels,
- contraceptive social marketing programs,
- family planning clinics, and
- community-based distribution projects.

In developed countries, which account for 60 percent of users, most condoms are sold commercially through pharmacies and other stores, mail order services, vending machines, and, in Japan, house-to-house sales. Men more often than women buy condoms, although not everywhere. In Japan, for example, door-to-door saleswomen sell condoms to women in their homes, and women can also obtain them easily in drugstores next to feminine napkins and tampons (349). Now in the US also, sales of condoms to women are increasing. Today perhaps as many as 40 percent of buyers are women (9). As a result new marketing campaigns are aiming at women as well as men (8, 9, 234, 402). Mentor Corporation recently introduced a new brand of condom in the US that is packaged to appeal specifically to women (7, 12, 234).

A major debate about mass media advertising of condoms is now underway in the US and Europe. Even though condoms are widely available, in many of these countries mass media policies have prevented any contraceptive advertising. Now concern over AIDS is forcing reappraisal of these restrictions since condoms protect against AIDS and other sexually transmitted diseases (see p. J-900). Both print and broadcast media are reconsidering their bans. Some radio and television stations and networks are running public service announcements and/or beginning to permit paid advertising. These announcements and advertising may make it easier for parents and schools to discuss sexual responsibility with children and encourage couples to discuss the issue more directly, too.

In most developing countries condoms can be bought through established commercial outlets. Availability differs both among and within regions, however. In Latin America condoms are widely available through pharmacies in a choice of brands, both domestic and imported. Condoms are made in Brazil and Mexico (454). In Africa large differences exist among countries, but in general condoms are not widely available, particularly outside urban areas. They also tend to be fairly expensive (317). In Asia commercial brands are sold, but in countries with large social marketing programs, such as India and Bangladesh, they have a small share of the market (186, 338). In only a few developing countries, such as India and Hong Kong, do commercial manufacturers advertise their condom brands through the mass media (39).

Contraceptive Social Marketing

Like commercial distributors, contraceptive social marketing projects sell condoms and other contraceptives through established retail outlets. The social marketing strategy, however, calls for extensive promotion and wide

Condom vending machines, like this one provided by the Mauritius Family Planning Association, offer buyers privacy and convenience, but they may be difficult to maintain. (JHU/PCS)

distribution of a subsidized product. Mass media advertising makes people aware of the products. A large network of retail outlets provides easy access for customers. And selling products donated by donor agencies or the government permits prices lower than commercial-brand prices. (See **Population Reports**, *Contraceptive Social Marketing: Lessons from Experience*, J-30, July-August 1985.)

Today social marketing projects are operating in nearly 20 countries. Colombia, India, Jamaica, and Sri Lanka were among the first to develop them. Projects have recently started in Ghana (363), Indonesia (364), Nigeria (191), Mexico (362), and Pakistan (367).

The volume of condoms sold through social marketing programs varies greatly. In India in 1984, the *Nirodh* social marketing program sold almost 200 million condoms (156). This amount would provide a full year of contraception for an estimated 1.5 percent of Indian married women of reproductive age. In Bangladesh the Social Marketing Project in 1985 distributed over 76 million condoms (307), enough to provide a year of contraception for an estimated 4 percent of married women of reproductive age. In Colombia over 22 million condoms were sold in the 5-year period 1981-85 (393). Between November 1985 and November 1986, its first year of operation, the Nigerian social marketing program sold over 8 million condoms (191). In 1986 the Indonesian program sold over 2 million condoms in its first nine months.

Social marketing combines easy access, privacy, and high-quality products with affordability. By charging distributors and retailers low prices, social marketing projects make condoms widely available at prices most people can afford. In Nigeria, for example, in 1986 the social marketing project sold four condoms for ₦ 0.50 (about US$.20). By comparison, the full commercial price for condoms was ₦ 3.00 to 4.50 (US$1.20 to $1.80) for three (191).

In contrast to commercial manufacturers, who have kept a low profile even in developed countries, social marketing projects have emphasized wide promotion and pioneered mass media advertising of contraceptives. In several developing countries people can now hear advertisements for condoms and other contraceptives along with other items on television and radio. Even in countries that have not allowed mass media advertising, the social marketing program has at least precipitated high-level discussion of the issue. Mass media advertising is promoting sales not only of social marketing brands but also of commercial brands. Even those who cannot pay for contraceptives at all may be motivated to seek out free services.

Social marketing advertising emphasizes that condoms are an excellent contraceptive method for married couples. This message counters the association that some people make between condoms and prostitution. As early as 1973, when the social marketing program started in Sri Lanka, it began with a mass media campaign to promote a positive image of condoms (443). Since then social marketing programs in other countries have promoted condoms similarly. Recent experience in Colombia shows that such campaigns can change attitudes. A 1984-85 radio and print campaign promoted generic condoms (without a brand name) to men. Before the campaign 74 percent of men thought that condoms were not for use with a permanent partner. The figure dropped to 54 percent after the campaign. Dissatisfaction with condoms and the feeling of

Social marketing programs often promote condoms as a good family planning method for married couples. This poster advertises *DuaLima* condoms, sold by the Indonesian social marketing program.

embarrassment when using condoms both decreased by about 20 percentage points. The number of men who reported buying condoms increased from 25 to 39 percent (300).

Social marketing advertising also stresses condom quality. In 1986 in Indonesia the government National Family Planning Coordinating Board (BKKBN) and three private companies launched a social marketing project with assistance from Social Marketing for Change (SOMARC) and support from the United States Agency for International Development (US AID) (364). The first product marketed is the *DuaLima* condom (see photo, this page). Research carried out before advertising started found that both men and women were concerned that condoms leaked. Also, men wanted condoms to be thin (377). Thus cinema ads have addressed both these issues, assuring people that *DuaLima* condoms are very thin yet leakproof (375).

Not only are some social marketing advertising campaigns improving the image of condoms, but they are also promoting the message of male responsibility in family planning. In 1982 the Bangladesh Social Marketing Project created a major radio ad campaign directed at men. Among the key phrases was "Be a wise man—do the right thing" (222). A later television campaign also used this phrase. In Colombia radio spots and print materials in the generic condom campaign carried the slogan "Loving responsibly is also a man's concern" (300). The percentage of men agreeing that men have a responsibility in family planning almost doubled, rising from 10 percent before to 19 percent after the campaign (366).

In Indonesia background research before the start of the social marketing program suggested that men, apart from deciding whether or not their wives could practice family planning, played very little part in choosing contraceptive methods (378). Therefore alerting men to their responsibility became a major objective of advertising (379). Promotional materials picture a husband in the foreground with his wife and child slightly behind him. In pre-tests of the materials, people felt that this arrangement, rather than the whole family in line, suggested a sense of male responsibility (376).

In Mexico a new brand of condom, *Protektor*, was recently launched. *Protektor* is the first product in a social marketing program involving the Ministry of Health and CONASUPO, a government-owned chain of grocery stores. The slogan "a man's contraceptive for responsible couples" conveys the idea of joint responsibility. All mass media messages have been designed to convey affection and commitment and to encourage both men and women to buy condoms (362, 365).

Program Distribution

Clinic-based and outreach family planning programs, both government and private, together distribute large quantities of condoms either free or at minimal cost.

In both developed and developing countries most condoms provided through clinics are given to women. Men are much more likely to buy condoms through retail outlets than go to clinics. Also, many clinics make little or no effort to encourage men to obtain condoms. In the US a survey of 35 family planning clinics found that all the clinics provided condoms, but only two-thirds of them offered condoms to men as well as to women (380). Some clinics now are making greater efforts to reach men. One of these is the Feebeck Hall Family Planning Program at Grady Memorial Hospital in the US city of Atlanta. In a pilot project in 1986 some female clients were offered free condoms to distribute to friends and relatives. Nearly three-fourths accepted them and distributed an average of 27 condoms each. As a result the project was expanded in 1987. Plans call for distributing 500,000 condoms through 15,000 to 20,000 people visiting the clinic. Up to 50,000 men will be served, many without ever visiting the clinic (142, 438).

Advertising addressed to men can tie its message to sports events. In Mexico the World Cup soccer matches were underway in 1986 when social marketing sales of *Protektor* condoms began. "A unique contraceptive just for champions," says the poster.

Like clinic programs, community-based distribution projects, which train local residents to distribute contraceptives in their communities, use primarily female workers and tend to serve women. Most community-based projects provide condoms but distribute many more oral contraceptives (349).

To encourage more condom use, community-based projects in various countries, including Ecuador, Ghana, India, Nigeria, and the Philippines, are now using trained male distributors to reach men directly (102, 105, 196, 236, 281, 404). In Lucknow, for example, the Family Planning Association of India has trained at least 85 young men to distribute condoms and encourage their use. In 1985 about 850 men obtained condoms for the first time, exceeding the project's goal by 71 percent (102). In Ghana the Planned Parenthood Association of Ghana community-based project has recruited as distributors men working in pharmacies, banks, lottery kiosks, police and military barracks, and elsewhere (196). A community-based project in Quito, Ecuador, run by the Centro Medico de Orientación y Planificación Familiar, is serving both men and women. To encourage greater interest among men, three men as well as several women have been trained as distributors. The National Police, Customs, and the State Railroad Administration are among the places they go to distribute contraceptives (105, 272).

PROVIDING VASECTOMY SERVICES

Efforts to involve men in family planning have focused more on vasectomy than any other contraceptive method, but these efforts have been limited to a few countries. While vasectomy has been actively encouraged in several Asian countries, in Latin America vasectomy services have only recently begun to spread. In Africa and the Near East they remain virtually nonexistent. Thus in much of the world lack of services remains a major obstacle to wider use of vasectomy. The First International Conference on Vasectomy in 1982 concluded that, to give all men who want no more children the opportunity for vasectomy, both high-quality, convenient services and wide-reaching educational programs are needed (25).

Asian Programs

Major government efforts to promote vasectomy have so far taken place only in certain Asian countries. National family planning programs in Bangladesh, China, India,

Nepal, South Korea, Sri Lanka, and Thailand all make vasectomy widely available through outlets that include hospitals, outpatient clinics, mobile teams, and sometimes private physicians (139, 280, 282, 392, 408). As a result, vasectomy is more prevalent in Asia than in any other part of the developing world. China and India alone account for four-fifths of the world's couples protected by vasectomy (see Table 2).

Since the mid-1970s, following the development of the simpler female sterilization techniques of minilaparotomy and laparoscopy, government programs in these and other countries have vigorously promoted voluntary female sterilization on an outpatient basis. Thus in the late 1970s and early 1980s the annual number of female sterilizations has almost always exceeded the number of male sterilizations in all seven of these countries (218, 332). Nevertheless, each year large numbers of men obtain vasectomies. In Bangladesh, India, Nepal, and Sri Lanka, the number of vasectomy clients has increased in the early 1980s. In Bangladesh, for example, the number of men having vasectomies grew from 26,000 in fiscal year 1980-81 to 69,000 in 1981-82 and to 89,000 in 1982-83 (332). In India a backlash occurred after the 1976 Emergency Campaign, in which over six million men were recruited for vasectomy, some reportedly under pressure. Vasectomies dropped to only 188,000 in fiscal year 1977-78. Since then, however, there has been a gradual increase each year. In 1982–83 almost 600,000 vasectomies were performed (332). In China vasectomy prevalence varies widely among provinces. The highest rate—31 percent—is in Sichuan. This may be due to the emphasis that the provincial family planning program gave to male sterilization in the late 1970s (309).

The national programs in Bangladesh, China, India, Nepal, South Korea, and Sri Lanka at various times have provided compensation to men and women who choose sterilization. This has usually taken the form of small cash payments to cover travel costs or lost wages, food while away from home, or material goods such as clean clothes (332).

Private family planning organizations in several Asian countries offer vasectomy services to supplement the government programs. The Bangladesh Association for Voluntary Sterilization, for example, has offered male and female voluntary sterilization services since 1975. Between 1981 and 1985 over 150,000 vasectomies were performed (29). In 1980, with help from the Association for Voluntary Surgical Contraception, the Bangladesh organization set up a separate clinic for men (25). By the end of 1986 this clinic had performed over 10,000 procedures, averaging over 1,700 a year (429).

In Thailand Community-Based Family Planning Services (CBFPS), now a part of the Population and Development Association, has been promoting family planning since 1974, using a network of trained local volunteers in thousands of villages (154, 265). In 1980 CBFPS initiated a voluntary sterilization project to provide services, particularly vasectomy, in areas not served by the government program. Services can be obtained through urban clinics and through mobile teams that travel throughout rural areas in specially equipped vehicles. Services are publicized by village volunteers and in the mass media. In the first three years the project performed more than 19,000 vasectomies (265). "Vasectomy festivals," which offer services on public holidays, have attracted many clients—partly because men are not working on holidays and also because the services are offered as part of holiday activities. In 1983 at the King's Birthday Festival, CBFPS doctors performed 1,190 vasectomies in one day at a single site. Because of the popularity of the festivals, in 1984 the government program organized similar "mini-festivals" in many provinces (266).

Latin American Programs

Until recently, few men in Latin America had vasectomies (see p. J-897 and Tables 1 and 2). A major reason has been lack of information and services. Government programs either do not provide vasectomy or have very limited services. Most men who want the procedure must find a private physician to perform it. In some countries, however, small private programs are now offering vasectomy. Their popularity is proving that a demand exists for good-quality, convenient services. In Guatemala the Asociación Pro-Bienestar de la Familia (APROFAM) started one of the first vasectomy programs in Latin America in 1973. It publicized its vasectomy services through educational materials, the mass media, and talks to groups of men. In 1977 APROFAM expanded its services to some national hospitals and various private centers in addition to APROFAM clinics (335). In 1980 just over 1,000 men had vasectomies through the program. By 1984 the number had risen to over 1,600, but it declined slightly in 1985 to just under 1,500 (166).

Two pioneering programs in Latin America are demonstrating that separate clinics for men encourage male involvement in family planning, and particularly vasectomy. They also are proving that men are willing to pay for high-quality, reasonably priced vasectomy services. Promação da Paternidade Responsável (PRO PATER) is a private

Camisa de Vênus
Coito Interrompido
Pílula
DIU
Abstinência...
...ATÉ QUANDO?
A alternativa inteligente: simples e segura
e a vasectomia, uma incisão superficial de 1 cm
praticada no homem sem necessidade de internação
hospitalar. Ela elimina definitivamente o risco da
gravidez não planejada preservando, ao mesmo tempo
toda a potência e toda a virilidade do homem
Se você já tem os filhos que desejava ter
opte pela vasectomia. Não haverá maior prova de
amor que você possa oferecer à mulher de sua vida
PRO PATER

"Condom, withdrawal, pill, IUD, abstinence . . . how much longer?" asks this ad, one of four placed by PRO PATER in male-oriented magazines in São Paulo, Brazil, to promote vasectomy. During the campaign the number of vasectomies done at the PRO PATER clinic rose by 60 percent, and the number of inquiries doubled.

agency in Brazil that offers men both medical and educational reproductive health services. PRO PATER opened its first clinic in 1981 in São Paulo. In addition to vasectomy, the clinic offers other reproductive health services for men including treatment for infertility and sexual disorders (78, 79). Between February 1981 and October 1983 over 3,000 men had vasectomies at the clinic (78). By 1986 the figure had risen to over 10,000 (77).

Until 1985 PRO PATER depended primarily on word of mouth to attract clients. Toward the end of 1985, however, PRO PATER tested a magazine advertising campaign. In the seven weeks of the campaign an average of 98 vasectomies were performed per week, compared with 61 per week in the 7-week period just before the campaign—a 60 percent increase. A few months after the campaign, the number of vasectomy clients fell again but still remained over 40 percent higher than the precampaign level. The campaign doubled the number of telephone inquiries (77, 316). PRO PATER has now opened three more clinics for men, in São Paulo State, Paraná State, and Rio de Janeiro. PRO PATER also is helping ongoing family planning programs in two other cities in São Paulo State to integrate vasectomy into their clinical services (78, 287).

A similar experiment with clinics for men has begun in Colombia. The Asociación Pro-Bienestar de la Familia Colombiana (PROFAMILIA) has long provided vasectomy services at its 38 family planning clinics, but most of these clinics perform very few procedures. In November 1985 PROFAMILIA opened a clinic for men in Bogotá and another in Medellin and has been using radio spots to promote them. In addition to vasectomy, the clinics provide urology examinations and treatment for infertility, sexual dysfunction, and sexually transmitted diseases. They also provide routine laboratory tests. The Bogotá clinic is already performing about 100 vasectomies a month, and the Medellin clinic, almost 50—about double and triple, respectively, the numbers performed previously at the PROFAMILIA clinics in those cities. At the Bogotá clinic, service fees cover three-quarters of the operating costs. A third men's clinic is planned for Cali (50, 51, 385, 386).

Hong Kong Campaigns Attract Men to Family Planning

The Family Planning Association of Hong Kong (FPAHK) has mounted the longest running, most thorough efforts to reach and serve men. In 1960 the Association opened two clinics for men. In 1973 a vasectomy clinic opened. Since 1977 the Association also has organized a series of multimedia publicity campaigns. The most recent of these was launched in October 1986 to emphasize the benefits of male participation in family planning. It features a cartoon character, "Mr. Able," created especially for the campaign. A blimp and a band performance highlighted the kick-off ceremony, and a "Mr. Able" campaign bus toured Hong Kong (see photo below). The campaign also is using television and radio spots, as well as posters, pamphlets, and specially packaged condoms, to spread the message, "Be a Mr. Able in family planning." A series of contests is planned, including cooking, snooker, and script-writing. A "Mr. Able" club will be set up (101, 202, 203).

The "Mr. Able" campaign is the latest in a long line of promotional efforts aimed at men. The first, in 1977, was the "Mr. Family Planning" campaign, which focused on well-known personalities. A 1979 campaign featured a soccer star who had undergone vasectomy. A 1982 campaign used Superman as the theme. It was replaced in 1983 by the "Kung Fu Master" campaign, with a well-known veteran kung fu master and actor as its central figure (200).

All these campaigns have used mass media extensively. In the "Mr. Family Planning" campaign, men representing different professions were presented as "model men" in television spots. Their message: "While we depend on our wives to give us children, we can depend upon ourselves not to have any." The "Kung Fu Master" spots stressed sharing responsibility for family planning between husband and wife. Many popular television and radio shows interviewed the celebrities and FPAHK staff and ran features about the campaigns. Newspapers and magazines also covered the campaigns extensively. The "Kung Fu Master" campaign generated well over 100 articles. Posters, pamphlets, and souvenir gift and salable items such as T-shirts also were produced for the campaigns. Special activities—a mobile exhibition, competitions such as a family photo contest, and soccer games—were organized.

As a result of the publicity and services offered, the percentage of new clients—both men and women—obtaining condoms at FPAHK clinics increased from 10 percent in 1970 to 30 percent in 1982 (200). Since then it has dropped back, however, and during the first six months of 1986 reached just 21 percent (203). The number of vasectomy clients has fluctuated. It climbed to almost 600 in 1979, the year of the vasectomy campaign, but then dropped. In 1984 the number increased again to 632 but since has declined somewhat (200, 203). This experience demonstrates the need for continuous promotion and suggests that publicity for specific methods attracts more clients.

In Hong Kong the new "Mr. Able" campaign encourages men to take the lead in family planning. Police cadets hand out flyers and free condom samples by the "Mr. Able" bus. (Courtesy of Peggy Lam)

Developed Countries

Among developed countries the largest numbers of vasectomies are performed in the US and Great Britain. In the US most men obtain vasectomies through private physicians (184). Of the estimated 419,000 procedures in 1984, for example, private physicians accounted for 90 percent. Freestanding outpatient surgery centers, military facilities, and family planning clinics accounted for the other 10 percent (24). While vasectomy is widely available in the US, cost may prevent many low-income men from obtaining the service. In a 1983 survey half of the physicians who performed vasectomy reported that they did not accept Medicaid (government health insurance) reimbursement, and only 12 percent said that they would reduce fees for patients who could not afford them (277). In Britain vasectomy is available through government health services. It is estimated that well over half of procedures are performed by private physicians or in private clinics, however, because there are often long waiting lists for government services (132).

PROMOTING MALE RESPONSIBILITY

A small but growing number of education and information programs are encouraging men to take greater responsibility for family planning. Rather than promoting specific contraceptive methods, most focus on responsible parenthood and encourage men either to use contraceptives themselves or to support their partners in using a method. Both interpersonal communication and mass media strategies are used. Some of these projects are focusing particularly on young men.

Educational Activities

Educational programs for men take various forms. In a few countries government agencies have taken the lead. In Jamaica, for example, in 1982 the National Family Planning Board launched its Male Responsibility Programme. Lectures and panel discussions for men are a major part of the program. One-day motivational seminars also are held. By 1985, 5,000 men had attended lectures and other activities; 850 had attended the one-day motivational seminars; and 120 volunteers had been trained as educators to conduct small seminars in their communities and workplaces. The program also has produced booklets for participants and posters for the workplace and elsewhere. It also uses the mass media to promote male responsibility. In 1985 the program launched a 6-month mass media campaign aimed specifically at young men. The campaign slogan—"Before you be a father, be a man"—complemented the slogan of the young women's campaign—"Before you be a mother, be a woman." It used radio, newspaper advertising, and automobile bumper stickers to urge men to behave responsibly toward women and to take responsibility for their children (170, 171, 172).

In Mauritania the Ministry of Health and Social Affairs has organized a school for fathers as part of a family health project. The school started in 1981. Its purpose is to make men sensitive to the health problems of women and to family planning. Fathers meet once a month to discuss a variety of problems affecting children and women. In 1984 the project started a weekly school for husbands to provide information on family health to young men who do not yet have children (368).

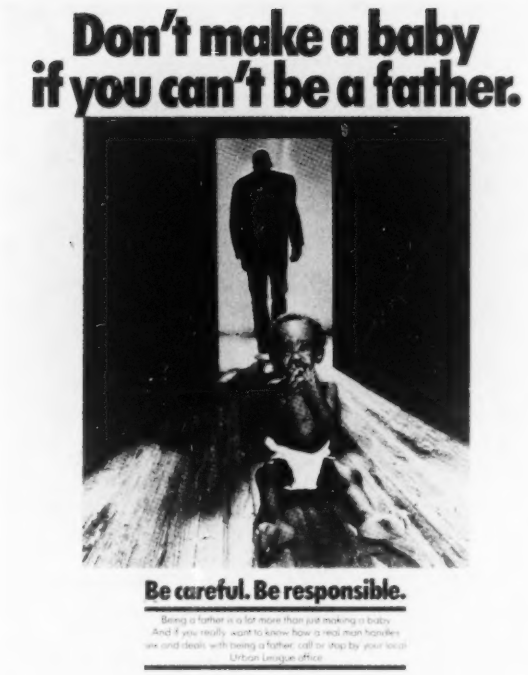
A 1983-84 operations research project in Dominica, carried out by the Ministry of Health and Tulane University, showed that men were willing to attend education sessions on family planning and related issues. A trained male promoter conducted a series of four sessions in one urban and four rural communities. Between lectures the promoter visited the communities to talk with men and distribute condoms. A man from each community helped recruit participants for the sessions. A follow-up survey found that 19 percent of men interviewed in the five communities had attended at least one lecture, and half had heard of the male promoter. Since no survey was carried out before the education sessions, however, it is not clear exactly what impact the sessions had on knowledge and use of contraceptives (205).

Most educational activities for men have been organized by private agencies, often family planning associations. In 1979, for example, a chapter of the Family Planning Organization of the Philippines began a class for fathers in family life education (281). In 1986 the Mauritius Family Planning Association conducted two one-day seminars and six half-day talks for men to inform them about family planning and to encourage them to use male methods (229). Also, a number of family planning associations are carrying out educational activities that reach men where they work (see pp. J-913–914).

Educational outreach programs for young people have been organized in several countries. Many of these programs try to reach young men especially (see **Population Reports**, *Youth in the 1980s: Social and Health Concerns*, M-9, November-December 1985). Several outreach projects for young men are operating in the US. In Chicago the Adolescent Family Center of the Rush-Presbyterian St. Luke's Medical Center started a male adolescents' program in December 1984 to complement a program that serves primarily young women. The men's program has three goals: to teach young men the consequences of teenage pregnancy, to teach them how to prevent pregnancy, and to help those who have already become fathers to meet their new responsibilities. The curriculum is approved by the city Board of Education, and program staff conduct courses in schools. They also give talks in youth agencies and churches and in jails to young men about to be released. Between September 1985 and September 1986 the program reached 1,500 young men (58, 286, 334).

The Young Men's Clinic at Columbia Presbyterian Hospital in New York combines clinical services with an outreach program. The staff work closely with neighborhood recreation centers, churches, youth agencies, and even the local police station to encourage young men's visits. To generate interest, the staff also use the clinic videotape equipment to film young men's activities, such as basketball. After the filming they talk with the players and suggest that they come to the clinic to see the video. At the clinic they can receive information and health care and discuss any problems that they may have (58).

Outreach projects in Latin America also address the special needs of young people, both men and women. For example, the Centro de Orientación Para Adolescentes (CORA) in Mexico is a multiservice program that offers recreational activities, counseling, job training, sex educa-


Don't make a baby if you can't be a father.
Be careful. Be responsible.
Being a father is a lot more than just making a baby.
And if you really want to know how a real man handles sex and deals with being a father, call or stop by your local Urban League office.

The National Urban League in the US is mounting a major campaign to tell young black men about male responsibility. The League, a nonprofit group seeking equal opportunity for all minority groups, sponsors a variety of activities for young people.

tion, and medical services to young people. Peer counselors help young men develop an attitude of responsibility in relationships with women. These peer counselors contact other young men in sports centers, schools, playgrounds, and other places where young men gather. The program operates through two centers in Mexico City and one in Tamaulipas (242).

In an ongoing operations research project in Monterrey, Mexico, Prosuperación Familiar Neolonesa found after nine months that trained young volunteer outreach workers, supervised by a community counselor, encouraged more young men to attend sex education courses than multiservice Integrated Youth Centers. Furthermore, they cost less than one-third as much. Similar programs are now being set up in other communities along Mexico's northern border (336).

In Asia also family planning associations are organizing outreach activities for young people. The Family Planning Association of Hong Kong, for example, contacts young people at marriage registries. It also provides premarital checkups. In 1986 it opened a health care center for young people (201). In the Philippines, to ensure that young people know about responsible parenthood before they marry, a regulation requires that each couple attend a special session before they can obtain a marriage license (448).

Telephone hotlines are another way of reaching young people in urban areas with information and advice. They are convenient, and they offer anonymity. Hotlines have been set up in several countries including Austria, Hong Kong, Ireland, Sierra Leone, Thailand, and the US (436, 439, 440, 446, 447).

The World Scout Bureau and the International Planned Parenthood Federation are working together to introduce family life education to national scout groups. Programs are now underway in Bangladesh, Egypt, India, Indonesia, Kenya, Nepal, and Thailand. Regional conferences for scout leaders have been organized in Benin, The Gambia, Kenya, Nepal, Thailand, and Zimbabwe (449).

Using Mass Media

During the 1980s the mass media—radio, television, and print—have become the most important tools for spreading the family planning message. Several programs are now promoting male responsibility through the mass media. The most extensive program so far has been organized by the Family Planning Association of Hong Kong (see box, p. J-910). Other efforts have been on a smaller scale. The Caribbean Family Planning Affiliation (CFPA), for example, developed posters and radio spots that seven Caribbean islands used in male responsibility campaigns in 1985 (see photo, p. J-914). CFPA also produced a video entitled "Man to Man" (208). The Planned Parenthood Federation of Nigeria uses radio and television programs, newspaper ads and articles, posters, and booklets to spread the message of male responsibility in a communication project in Plateau state (195) (see photo, p. J-892). In Zimbabwe the National Family Planning Council has set up booths encouraging male responsibility at an international trade fair and an agricultural exhibition. Interviews with people at the exhibitions and with council staff have been used later in radio programs. A radio drama is planned that will address the issue of male responsibility in family planning (180).

Developed countries have lagged behind many developing countries in using mass media to promote family planning, including male responsibility. This reluctance may be diminishing, however. In 1984 the British Family Planning Association launched its "Men Too" campaign to increase men's awareness of their responsibility. A press conference presented messages of support from 21 famous men. Special television spots were aired free of charge by several stations, and in each region an actor who was familiar to the region delivered the script. Posters for family planning clinics and four new publications—two motivational leaflets, a comic-strip leaflet, and a guide for health educators—were produced, as well as a video, "Danny's Big Night." The video story, set in a multiracial inner-city area, explores problems facing adolescents and male attitudes in particular. Its purpose is to start discussions in youth clubs, schools, colleges, and other places where it is shown. The campaign ended in March 1985 with a national conference. Throughout, the campaign received broad coverage in newspapers and on television and radio (406, 407). In 1984, the year that the campaign started, 13 percent more men attended family planning clinics than in the previous year. Statistics for 1985 are not yet available (11). In early 1986 the Family Planning Association in Queensland, Australia, launched a "Men Too" campaign closely modeled on the British campaign (167).

While most US media depict aggressive male sexual tactics in entertainment programming, a few organizations are now using the media positively, to encourage men to be sexually responsible. In 1985 the National Urban League, which sponsors a wide range of social, educational, and vocational programs for young blacks and other minority groups, launched a male responsibility campaign with the

theme "Don't make a baby if you can't be a father." Using posters and newspaper and radio ads, the campaign reached hundreds of thousands of young black men (260). Many local affiliates also organized special workshops and debates (261). In a new 2-year, expanded program, the materials will be distributed more widely, and affiliates and other community organizations will receive technical assistance to develop programs involving young men in pregnancy prevention and responsible parenting (259, 260, 262). Several National Urban League affiliates already run special educational programs for young men on family planning counseling, parenting, and family relations (259).

Print Materials

Many other programs in both developing and developed countries have produced posters, leaflets, and booklets especially for men. While some concentrate on information about specific family planning methods—condoms and vasectomy—others present a more general message about family planning and sexual responsibility. One such booklet is "Thabo's Home Coming," developed in Lesotho by the Family Planning Association and the Lesotho Distance Teaching Centre. The booklet is aimed at married men. The story of a returning migrant worker does not directly preach the benefits of family planning but instead helps readers think about family planning (210, 211). In Sweden the National Board of Health and Welfare is preparing a magazine called "Just for Boys," which will provide information on growing up, love, and sex. It will be distributed in youth centers, schools, sports clubs, military service units, and employment training centers. It is intended to help male youth leaders, trainers, and teachers discuss these issues with young men (34).

REACHING MEN IN THE WORKPLACE

In developing countries the vast majority of workers in the organized sector of the economy are men. Thus the workplace is an excellent place to reach men with family planning information and services. In factories, industrial plants, and cooperatives, as well as on plantations, a variety of family planning activities have been carried out, including lectures and group meetings, formation of men's clubs, and provision of contraceptives.

Private-Sector Programs

There have been employment-based programs around the world for many years. Some of the earliest efforts were projects in steel companies in India and Japan dating back to the early 1950s (434, 452). The US Agency for International Development (US AID), along with other donor agencies, has supported many employment-based programs over the years. In 1985 the Agency increased its emphasis on such programs by funding the 5-year Enterprise Program, which John Snow Inc. is implementing. A major goal of the program is to improve or expand family planning services provided by private-sector employers. The program also assists private medical service providers and nonprofit private organizations. Three projects with manufacturers are already underway: with Lever Brothers in Nigeria, P.T. Gamay Djaja Corporation in Indonesia, and Industries Unidas-Pasteje in Mexico. All projects offer both education and services. Also, with support from the Enterprise Program, the Population and Development Association in Thailand is expanding its factory-based family planning services, which rely on trained workers who serve as volunteer motivators and distributors (175, 176, 269).

A precursor of the Enterprise Program is the ongoing Family Planning Private Sector Programme, which started in 1984 in Kenya. This 4-year program is helping private companies and nongovernmental institutions add family planning services to existing health services for employees and their families. The program is coordinated by the National Council for Population and Development and implemented by John Snow Inc., with support from US AID. Although the program emphasizes services, health workers also conduct educational sessions in the workplace. In addition, individual companies are encouraged to form their own community-based committees, with management, union, and worker representation, to plan information and education programs (106, 193).

The Family Planning Private Sector Programme in Kenya supports 30 projects in a variety of enterprises. These include paper mills, cashew nut and tea producers, and sugar companies, all of which employ mainly men. Each project has a potential clientele of 1,400 to 500,000 people, and the entire program is available to over one million people. The program aims to recruit a total of at least 30,000 new family planning clients (106, 193).

Family planning associations and other private agencies in several countries also have started projects among male workers. Nine chapters of the Family Planning Association of India, for example, have programs in factories that together employ about 300,000 men. In 1985 these programs carried on a broad range of activities such as general meetings, group discussions, counseling, and cultural programs. During the year over 70 condom distribution depots were established in factories. Over 3,000 educational programs were held. Almost 6,000 men or their wives chose a contraceptive method, and 560 men had vasectomies. Workers also were encouraged to form Acceptor Clubs (103).

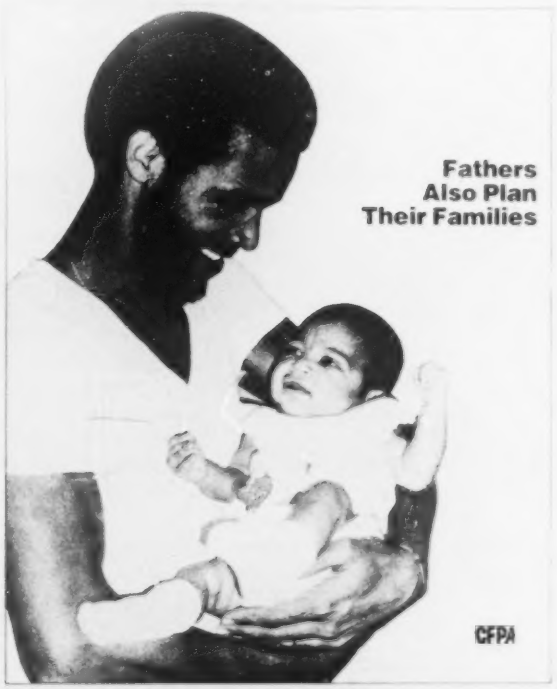
Since 1972 the Family Planning Association of Bangladesh (FPAB) has been promoting family planning among mill workers. The project involves educational campaigns, group meetings with field workers, and home visits. Also, field workers accompany men who want vasectomies to Association clinics. An Action Committee made up of representatives of management, the mill's Medical Department, and labor leaders provides support for the field workers, reviews project performance, and suggests ways to attract more clients (322). In Comilla the Family Planning Association of Bangladesh started a project in 1980 involving the 3,500-member Rickshaw Labor Union. One hundred rickshaw pullers were trained as functional literacy teachers and family planning motivators. They in turn organize functional literacy centers, group meetings, and various community events for other rickshaw pullers. The group approach has helped individuals to accept the idea of family planning: they see that other union members approve. The trained rickshaw pullers also keep contraceptive supplies for their fellow workers (322).

The Planned Parenthood Association of Ghana carried out educational programs for industrial and commercial workers between 1980 and 1982. In 1981 the Association also

collaborated with the National Vocational Training Institute to integrate family life education into the training syllabus for 1,000 young men from messenger and clerical grades in the public service (196). In 1980 the Association also began its Daddies Clubs. Today there are four clubs in different areas of Ghana. The club at Pretsea Oil Palm Plantation, in the western region, has been particularly successful. Although initially only 25 workers joined, membership rose sharply after the Association was able to treat two infertility cases successfully. By 1985 the club had about 200 active members, ranging in age from 18 to 40. The group meets weekly for film shows, debates, lectures, group discussions, and indoor games. Some of the club members are community-based distributors of contraceptives (196, 421).

The Planned Parenthood Federation of Nigeria has trained 44 male volunteers as motivators. They provide family planning information and distribute condoms and spermicides in 20 factories in urban areas (195). The family planning associations in Egypt, Hong Kong, Lesotho, and Tunisia also have organized projects in the workplace (61, 200, 320).

Family planning associations also are working with the military and police and training family planning instructors for them. In 1973 the Planned Parenthood Federation of Korea began a program with the Homeland Reserve Forces, whose members now number about 3.5 million. Today family planning education is part of the reservists' annual training course and incorporated into training for the regular military as well. The Federation also holds a workshop every year to train medical officers as population educators. In 1982 over 1.7 million reserve troops attended a total of 8,000 lectures, and over 23,600 had vasectomies. As a result of this and other programs that focus on men, the total number of men using male-oriented methods in South Korea increased from 53,100 in 1981 to 123,000 in 1984 (281, 283). In 1978 the Planned Parenthood Association of Thailand began working with the Royal Thai Army and the metropolitan police, organizing lectures and training volunteer motivators (295). The Association also helped to integrate family planning education into the training curriculum for police cadets and provided in-depth training to interested instructors (281). In 1984 the Family Planning Association of Malaysia began educational activities in all-male organizations such as the army, police, farmers' cooperatives, and trade unions (281). The family planning associations in Bangladesh and Turkey also have organized activities for the armed forces (99, 235).



The mass media are bringing the male responsibility message to large numbers of men. Several Caribbean countries have run male responsibility campaigns using radio spots, a video, and posters produced by the Caribbean Family Planning Affiliation.

ILO Population Education Program

The Population Education Programme of the International Labour Office (ILO) has been a major promoter of employment-based educational programs for over a decade. Today it supports or assists almost 70 projects in over 30 developing countries as diverse as Bangladesh, Jamaica, and Sudan. Many of the projects are carried out directly with companies. They focus on the welfare of the worker's family and on family economics. At the worksite they teach workers about the relationship between family resources and family size. They encourage family planning, particularly for child-spacing, so that the workers can adequately care for the children they have. Most of these projects do not offer family planning services (158, 326, 327). Since the success of these projects depends on the support and involvement of top trade union leaders and on the cooperation of management, they usually have joint labor-management committees to coordinate activities.

ILO technical staff help trade unions and employer organizations to start programs for workers. Employer organizations in Bangladesh, Hong Kong, India, the Philippines, and Sri Lanka have established such programs with ILO help. In each country an education unit now operates in the office of the national employer federation. The office encourages federation members to introduce family welfare education activities in the plant or factory (326).

The ILO program also has introduced population education into the curricula of vocational training courses in several countries including Bangladesh, Jamaica, Jordan, and Zambia. Thus, as well as learning new job skills, the students learn about family welfare issues (326).

These programs for men suggest that an important start has been made in involving men more actively in family planning. A greater effort is still needed, however. More surveys of men and more evaluation of existing projects would provide valuable information to guide future programs.

Since many family planning programs have neglected men for so long, there is an urgent need for a wide range of projects to reach men in the workplace, in the community, and in health care centers. In the long term, however, the most effective family planning programs will be those that serve the needs of both women and men, not only individually, but also together, as couples, recognizing that family planning is a joint responsibility.

BIBLIOGRAPHY

Asterisk (*) designates an article that was of particular value in the preparation of this issue of **Population Reports.**

1. ANONYMOUS. A message for men. [Editorial] People 10(4): 2. 1983.
2. ANONYMOUS. AIDS epidemic sparks campaign to encourage condom use. Contraceptive Technology Update 6(12): 161–163. December 1985.
3. ANONYMOUS. Company improves condoms by adding spermicide. Contraceptive Technology Update 3(8): 103–104. August 1982.
4. ANONYMOUS. Decision-makers on family planning: the Bohol experience. Population News Service 2(7): 1–4. 1977.
5. ANONYMOUS. Ghana: half the fertility reduction in a rural area is due to acceptance by men of family planning. International Family Planning Perspectives 5(1): 31–32. March 1979.
6. ANONYMOUS. Indian outlook on family planning. Current Opinion 4(11): 118–121. November 1976.
7. ANONYMOUS. More women shopping for birth control items. Drug Store News, July 7, 1986. p. 13, 15.
8. ANONYMOUS. Rely on condoms to protect your sexual health. Contraceptive Technology Update 8(1): S1–S4. January 1987.
9. ANONYMOUS. Selling condoms to women. Working Woman, October 1985. p. 68, 72, 74.
10. ANONYMOUS. Tests confirm condoms block AIDS virus. Medical World News 27(2): 31–32. January 27, 1986.
11. ANONYMOUS. The profile of a campaign: "men too." Entre Nous 8: 11–13. July 1986.
12. ANONYMOUS. Woman buyers targeted. Asbury Park Press, June 26, 1986. p.
13. ABDULAH, N. Attitude to birth control. In: Fertility and family planning among men in Trinidad and Tobago 1973. Report on family planning survey—males. St. Augustine, Trinidad, University of the West Indies, Institute of Social and Economic Research, [1975]. p. 59–75.
14. ABDULAH, N. Ideal number of children. In: Fertility and family planning among men in Trinidad and Tobago 1973. Report on the family planning survey—males. St. Augustine, Trinidad, University of the West Indies, Institute of Social and Economic Research, [1975]. p. 26–39.
15. ADEBAYO, A. and ADAMCHAK, D.J. Fertility attitudes of male Nigerian students in the U.S. Presented at the Annual Meeting of the Population Association of America, Boston, March 27–30, 1985. 31 p.
*16. AHMED, G. and WILLIAMSON, N.E. The case of the missing condoms: results of the 1983 Bangladesh condom user survey. Presented at the American Public Health Association Meeting, Anaheim, California, November 11–15, 1984. 30 p.
17. AKHTAR, B.F., WEINBAUER, G.F., and NIESCHLAG, E. Acute and chronic effects of a gonadotrophin-releasing hormone antagonist on pituitary and testicular function in monkeys. Journal of Endocrinology 104(3): 345–354. March 1985.
18. ALEXANDER, N.J. (Eastern Virginia Medical School) [Open-ended vasectomy and sperm antibody formation] Personal communication, January 29, 1987.
19. ALEXANDER, N.J. Contraceptive potential of antisperm antibodies. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 429–434.
20. ALEXANDER, N.J. Development of a contraceptive vaccine. [Abstract] Advances in Contraception 2(3): 273–274. September 1986.
*21. ALIAGA, A. and NOVAK, J.A. Contraceptive knowledge, use, and attitudes among Dominican men: results from the 1984 Male Contraceptive Prevalence Survey. Presented at the meeting of the American Public Health Association, Washington, D.C., November 19, 1985. 23 p.
22. AMELAR, R.D. and DUBIN, L. Vasectomy reversal. Journal of Urology 121(5): 547–550. May 1979.
23. ARONSON, J. (Schmid Laboratories) [Export of spermicidal condoms to developing countries] Personal communication, December 10, 1986.
24. ASSOCIATION FOR VOLUNTARY SURGICAL CONTRACEPTION. Study includes first comprehensive look at outpatient services. AVSC News 24(4): 2–6. October–November 1986.
*25. ATKINS, B.S. and JEZOWSKI, T.W. Report on the 1st International Conference on Vasectomy. Studies in Family Planning 24(3): 89–96. March 1983.
26. ATKINSON, L.E., LINCOLN, R., and FORREST, J.D. The next contraceptive revolution. International Family Planning Perspectives 11(4): 100–107. December 1985.
*27. BACHRACH, C.A. and MOSHER, W.D. Use of contraception in the United States, 1982. NCHS Advancedata, No. 102, December 4, 1984. 8 p.
28. BAJAJ, J.S. and MADAN, R. New approaches to male fertility regulation: LHRH analogs, steroidal contraception, and inhibin. In: Benagiano, G. and Diczfalusy, E., eds. Endocrine mechanisms in fertility regulation. New York, Raven, 1983. (Comprehensive Endocrinology, No. 3) p. 203–231.
29. BANGLADESH ASSOCIATION FOR VOLUNTARY STERILIZATION (BAVS). Year-wise BAVS vs. national performance. [Table] Dhaka, Bangladesh, BAVS, 1986. 1 p.
30. BARBADOS FAMILY PLANNING ASSOCIATION, and WESTINGHOUSE HEALTH SYSTEMS (WHS). A comparative study of contraceptive prevalence in Antigua, Dominica, St. Lucia and St. Vincent. Columbia, Maryland, WHS, September 1983. (Contraceptive Prevalence Surveys) 83 p.
31. BARLOW, D. The condom and gonorrhoea. Lancet 2(8042): 811–812. October 15, 1977.
32. BERENT, J. Family planning in Europe and USA in the 1970s. Voorburg, Netherlands, International Statistical Institute, October 1982. (World Fertility Survey Comparative Studies No. 20) 33 p.
33. BERG, P. Trials to begin on male contraceptive. Washington Post, November 4, 1986. p. 5.
34. BERGMAN, L. Just for boys—a social approach to sex education and family planning. Planned Parenthood in Europe Regional Information Bulletin 15(1): 15–25. Spring 1986.
35. BERTRAND, J.T., SANTISO, R., LINDER, S.H., and PINEDA, M.A. The evaluation of a communication program to increase adoption of vasectomy in Guatemala. New Orleans, Louisiana, Tulane University School of Public Health and Tropical Medicine, 1985. 32 p. (Mimeo)
36. BHASIN, S., FIELDER, T.J., and SWERDLOFF, R.S. Dissociating antifertility effects of a GnRH antagonist from its adverse effects on mating behavior: the critical importance of testosterone dose. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 329–335.
37. BILLINGS, E. and WESTMORE, A. The Billings method: controlling fertility without drugs or devices. New York, Random House, 1980. 254 p.
38. BILLINGS, J.J. The ovulation method. Melbourne, Australia, Advocate Press, 1970. 96 p.
39. BLAIRMAN, D.A. (LRC International Division, London International Group PLC) [Commercial distribution and advertising of condoms in Asia; marketing of spermicidal condoms] Personal communication, February 17, 1987.
40. BLEEK, W. The value of children to parents in Kwahu, Ghana. In: Oppong, C., Adaba, G., Bekombo-Priso, M., and Mogey, J., eds. Marriage, fertility and parenthood in West Africa. Canberra, Australia, Australian National University, 1978. (Changing African Family Project Monograph Series, No. 4, Pt. 1) p. 307–323.
41. BOGUE, D.J. Some tentative recommendations for a "sociologically correct" family planning communication and motivation program in India. In: Kiser, C.V., ed. Research in family planning. Princeton, New Jersey, Princeton University Press, 1962. p. 503–538.
42. BOMSEL-HELMREICH, O. The aging of gametes, heteroploidy, and embryonic death. International Journal of Gynaecology and Obstetrics 14(1): 98–104. 1976.
43. BORIA-BERNA, M.C. Husband's role in birth control acceptance. Medical Aspects of Human Sexuality 6: 70–74. May 1972.
44. BOUE, J., BOUE, A., and LAZAR, P. The epidemiology of human spontaneous abortions with chromosomal anomalies. In: Blandau, R.J., ed. Aging gametes: their biology and pathology. (Proceedings of the International Symposium on Aging Gametes, Seattle, Washington, June 13–16, 1973) Basel, S. Karger, 1975. p. 330–348.
45. BRACKEN, M.B. The Jamaican family planning programme: clinic services and social support as factors in dropping out. International Journal of Health Education 20(2): 126–135. 1977.
46. BREMNER, W. (University of Washington) [WHO clinical trial to test contraceptive efficacy of testosterone] Personal communication, October 15, 1986.
47. BULATAO, R.A. Content and process in fertility decisions: a psychosocial perspective. In: United Nations. International Conference on Population, 1984. Fertility and family. Proceedings of the Expert Group on Fertility and Family, New Delhi, January 5–11, 1983. New York, United Nations, 1984. (ST/ESA/SER.A/88) p. 159–199.
48. BURGER, J.M. and INDERBITZEN, H.M. Predicting contraceptive behavior among college students: the role of communication, knowledge, sexual anxiety, and self-esteem. Archives of Sexual Behavior 14(4): 343–350. August 1985.
49. BURRIS, A. (US National Institute of Child Health and Human Development) [Testing long-acting microsphere injectable of testosterone] Personal communication, October 14, 1986.
50. CADAVID, C. Clinica para el hombre. [Clinic for men.] [SPA] 1986. 17 p. (Unpublished)
*51. CADAVID, C. Colombian clinic offers vasectomy services. Communique 7(1): 1. July 1986.
52. CAIN, M. Risk and insurance: perspectives on fertility and agrarian change in India and Bangladesh. Population and Development Review 7(3): 435–474. September 1981.
53. CARLOS, A.C. Male involvement in family planning: trends and directions. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, [1984]. p. 1–8.
54. CARTWRIGHT, A. Husbands and marriage. In: How many children? London, Routledge and Kegan Paul, 1976. p. 152–164.
55. CARTWRIGHT, A. Pregnancies and contraception. In: Parents and family planning services. New York, Atherton, 1970. p. 11–24.
56. CATES, W., Jr., WEISNER, P.J., and CURRAN, J.W. Sex and spermicides: preventing unintended pregnancy and infection. [Editorial] Journal of the American Medical Association 248(13): 1636–1637. October 1, 1982.
57. CENTER FOR POPULATION AND FAMILY HEALTH (CPFH). Activity report for the period January 13–February 3, 1986: operations research, Burkina Faso. [New York], CPFH, 1986. 13 p.
*58. CENTER FOR POPULATION OPTIONS (CPO). Programs at a glance: programs for young men. Washington, D.C., CPO, December 1985. 11 p. (Mimeo)
59. CHAMRATRITHIRONG, A., KAMNUANSILPA, P., and KNODEL, J. Contraceptive practice and fertility in Thailand: results of the third contraceptive prevalence survey. Studies in Family Planning 17(6): 278–287. November–December 1986.
60. CHAN, K.C., CARTER, M.J., and COLBOURNE, M.J. Family planning provisions and attitudes: a survey in three Hong Kong public housing estates. Hong Kong, Family Planning Association of Hong Kong, [1978]. 74 p.
61. CHAOUCH-BOURAOUI, T. Male involvement in family planning in the Arab world region. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, [1984]. p. 51–55.
62. CHEN, P.S.J. Singapore. In: David, H.P. and Lee, S.J., eds. Social and psychological aspects of fertility in Asia. Washington, D.C., Transnational Family Research Institute, 1974. p. 39–49.
*63. CHINA POPULATION INFORMATION CENTRE (CPIC). Analysis on China's national one-per-thousand-population fertility sampling survey. Beijing, China, CPIC, 1984. 182 p.
*64. CHULALONGKORN UNIVERSITY, INSTITUTE OF POPULATION STUDIES, and NATIONAL STATISTICAL OFFICE, POPULATION SURVEY DIVISION. The survey of fertility in Thailand. Country report. Vol. 1. Bangkok, Chulalongkorn University and National Statistical Office, 1977. (World Fertility Survey, Report No. 1) 188 p.
65. CHULALONGKORN UNIVERSITY, INSTITUTE OF POPULATION STUDIES, and NATIONAL STATISTICAL OFFICE, POPULATION SURVEY DIVISION. The survey of fertility in Thailand. Country report. Vol. 2. [Tables] Bangkok, Chulalongkorn University and National Statistical Office, 1977. (World Fertility Survey, Report No. 1) 524 p.
66. CLARK, S.D. An examination of the sperm content of human pre-ejaculatory fluid. Masters thesis, [Johns Hopkins University], Baltimore, September 1981. 69 p.
67. CLELAND, J., VERRALL, J., and VAESSEN, M. Preferences for the sex of children and their influence on reproductive behavior. Voorburg, Netherlands, International Statistical Institute, October 1983. (World Fertility Survey Comparative Studies Cross-National Summaries No. 27) 46 p.
68. COLE, C.H., LACHER, T.G., BAILEY, J.C., and FAIRCLOUGH, D.L. Vaginal chemoprophylaxis in the reduction of reinfection in women with gonorrhoea: clinical evaluation of the effectiveness of a vaginal contraceptive. British Journal of Venereal Diseases 56(5): 314–318. October 1980.
69. COLE, J.B. and ALLEN, F.C.L. Contraceptive responsibility among male university students. Journal of the American College Health Association 28(3): 168–172. December 1979.
*70. COLEMAN, S. Family planning in Japanese society: traditional birth control in a modern urban culture. Princeton, New Jersey, Princeton University Press, 1983. 269 p.
71. CONANT, M. Problems with sexual activity. Presented at the Herpes Simplex Clinical Practice and Research Symposium, San Francisco, January 1982.
*72. CONANT, M., HARDY, D., SERNATINGER, J., SPICER, D., and LEVY, J.A. Condoms prevent transmission of AIDS-associated retrovirus. Journal of the American Medical Association 255(13): 1706. April 4, 1986.
73. CONANT, M.A., SPICER, D.W., and SMITH, C.D. Herpes simplex virus transmission: condom studies. Sexually Transmitted Diseases 11(2): 94–95. April–June 1984.
74. COREY, L. Genital herpes: an overview and update. Herpes 4(1): 1–2. March 1982.
75. CORSON, S.L. Self-prediction of ovulation using a urinary luteinizing hormone test. Journal of Reproductive Medicine 31(8): 760–763. August 1986.
76. CUTLER, J.C., SINGH, B., CARPENTER, U., NICKENS, O., SCAROLA, A., SUSSMAN, N., WADE, M., VOLKIN, L., MARSICO, A., and BALISKY, H. Vaginal contraceptives as prophylaxis against gonorrhea and other sexually transmissible diseases. Advances in Planned Parenthood 12(1): 45–56. 1977.
*77. DE CASTRO, M.P.P., FOREIT, K.G., FRANCO, E., and FOREIT, J.R. Effectiveness and cost effectiveness of mass media promotion of vasectomy services in São Paulo, Brazil. Presented at the 114th Annual Meeting of the American Public Health Association, Las Vegas, Nevada, September 30, 1986. 12 p.
*78. DE CASTRO, M.P.P., MASTROROCCO, D.A., DE CASTRO, B.M., and MUMFORD, S.D. An innovative vasectomy program in São Paulo, Brazil. International Family Planning Perspectives 10(4): 125–130. December 1984.
79. DE LA MACORRA, L. Brazil: a success story. In: Huber, S.C., ed. Social marketing of vasectomy services: an international review. Querétaro, México, Social Marketing International Association, [1986]. p. 45–62.
80. DEL QUIARO, R. The toll of drought and machismo. People 9(2): 26–27. 1982.
81. DHAR, G.M. and ZUTSHI, M.L. Attitude towards family planning: a study of inpatient attendants. Indian Journal of Public Health 21(2): 89–94. April–June 1977.
82. DICKSON, C. (Interstate Securities Inc.) [Condom sales in the US] Personal communication, February 9, 1987.
*83. DICZFALUSY, E. Special programme of research, development and research training in human reproduction: the first fifteen years: a review. Contraception 34(1): 1–119. July 1986.
84. DILLER, L. A social and historical update. In: Swanson, J.M. and Forrest, K.A., eds. Men's reproductive health. New York, Springer Publishing, 1984. (Springer Series: Focus on Men, Vol. 3) p. 207–213.
85. DILLER, L. and HEMBREE, W. Male contraception and family planning: a social and historical review. Fertility and Sterility 28(12): 1271–1279. December 1977.
86. DOHM, T.E. Age at marriage. Options for Policy and Practice 4(3): 1–13. May–June 1978.
87. DOMINICAN REPUBLIC. CONSEJO NACIONAL DE POBLACION Y FAMILIA (CONAPOFA), and WESTINGHOUSE HEALTH SYSTEMS (WHS). Republica Dominicana: Encuesta Nacional de Prevalencia del Uso de Anticonceptivos—mujeres: informe de resultados. [Dominican Republic: National Contraceptive Prevalence Survey—women: report of findings.] [SPA] [Santo Domingo, Dominican Republic], CONAPOFA and [Columbia, Maryland], WHS, 1984. (Contraceptive Prevalence Surveys) 187 p.
*88. DOMINICAN REPUBLIC. CONSEJO NACIONAL DE POBLACION Y FAMILIA (CONAPOFA), and WESTINGHOUSE HEALTH SYSTEMS (WHS). Republica Dominicana—Encuesta Nacional de Prevalencia de Anticonceptivos—hombre: in-

forme de resultados. [Dominican Republic—National Contraceptive Prevalence Survey—men: report of results.] [SPA] [Santo Domingo], Dominican Republic, CONAPOFA, and Columbia, Maryland, WHS, 1985. (Contraceptive Prevalence Surveys) 163 p.
89. DURRELL–McKENNA, N. Enrolling male support. People 9(2): 21. 1982.
90. DUSITSIN, N., BOONSIRI, B., and CHITPATIMA, K. Bangkok: are males resistant to sterilization? [EN, summary in FR] International Family Planning Perspectives 6(1):26–27. March 1980.
91. EKSTRÖM, K. Patterns of sexual behaviour in relation to venereal disease. British Journal of Venereal Diseases 46(2): 93–95. April 1970.
92. ERASMUS G. Besluitneming met betrekking tot die gebruik van kontrasepsie na bevalling: 'n Swart gemeenskap in Daveyton. [Decision–making in relation to the use of contraception after delivery: a black community in Daveyton.] [AFR, summary in ENG] Pretoria, South Africa, Raad vir Geesteswetenskaplike Navorsing, 1983. (Navorsingsbevinding SN–243) 15 p.
93. ERREY, B.B. and EDWARDS, I.S. Open–ended vasectomy: an assessment. Fertility and Sterility 45(6): 843–846. June 1986.
94. ESPENSHADE, T.J. (Urban Institute) [Estimated cost of raising a child in the US] Personal communication, February 2, 1987.
95. ESPENSHADE, T.J. The value and cost of children. Population Bulletin 32(1): 1–47. April 1977.
96. EWING, L.L. Testosterone–estradiol contraception in the male rhesus monkey. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. p. 304–319.
97. FAMILY HEALTH INTERNATIONAL. "Condom gap" examined in Bangladesh survey. Network 5(3): 5. Spring 1984.
98. FAMILY HEALTH INTERNATIONAL. Experts meet to discuss predictors of ovulation. Network 6(2): 1–2. Winter 1985.
99. FAMILY PLANNING ASSOCIATION OF BANGLADESH (FPAB). Family planning services for police–armed forces. In: 1985 annual report. [Dacca], Bangladesh, FPAB, [1986]. p. 19–38.
100. FAMILY PLANNING ASSOCIATION OF HONG KONG (FPAHK). Family planning knowledge, attitude and practice in Hong Kong 1982. Hong Kong, FPAHK, 1984. 125 p.
101. FAMILY PLANNING ASSOCIATION OF HONG KONG (FPAHK). Press conference on the "Mr Able" family planning campaign. Hong Kong, FPAHK, October 28, 1986. 1 p. (Press release)
102. FAMILY PLANNING ASSOCIATION OF INDIA (FPAI). Lucknow project for promotion of family planning among men. In: Annual Report 1985. [New Delhi], FPAI, 1985. p. 186–188. (Mimeo)
103. FAMILY PLANNING ASSOCIATION OF INDIA (FPAI). Male involvement through workers in industries. In: Annual Report 1985. [New Delhi], FPAI, 1985. p. 183–185. (Mimeo)
104. FAMILY PLANNING ASSOCIATION OF SRI LANKA (FPASL). Annual Report: 1984. Colombo, Sri Lanka, FPASL, [1985]. 56 p.
105. FAMILY PLANNING INTERNATIONAL ASSISTANCE (FPIA). Annual Report: 1985. New York, FPIA, [1986]. 210 p.
106. FAMILY PLANNING PRIVATE SECTOR PROGRAMME (FPPSP). Family Planning Private Sector Programme: annual report 1985. Nairobi, Kenya, FPPSP, 1985. 61 p.
107. FEIGENBAUM, E. Males and family planning: an attitudinal survey of 1200 teen and adult males in Merced County. [1978]. 43 p. (Unpublished)
108. FERIN, J. Determination de la période sterile prémenstruelle par la courbe thermique. [Determination of the premenstrual infertile period by means of the thermal curve.] [FRE] Bruxelles Medica 27: 2786–2793. 1947.
109. FERRY, J. AIDS ads flourishing: Europeans warned about dangers. Advertising Age, December 1, 1986. p. 70–71.
110. FIGA–TALAMANCA, I. Inconsistencies of attitudes and behavior in family–planning studies. Journal of Marriage and the Family 34: 336–344. May 1972.
111. FISEK, N.H. and SUMBULOĞLU, K. The effects of husband and wife education on family planning in rural Turkey. Studies in Family Planning 9(10–11): 280–285. October–November 1978.
*112. FOLCH–LYON, E., DE LA MACORRA, L., and SCHEARER, S.B. Focus group and survey research on family planning in Mexico. Studies in Family Planning 12(12): 409–432. December 1981.
*113. FORREST, K. Giving clinics man appeal. People 13(1): 6–7. 1986.
114. FORREST, K.A. Condoms and withdrawal. In: Swanson, J.M. and Forrest, K.A., eds. Men's reproductive health. New York, Springer Publishing, 1984. p. 214–225.
115. FOX, L.S. Adolescent male reproductive responsibility. Social Work in Education 6(1): 32–43. Fall 1983.
116. FOX, R. Kinship and marriage: an anthropological perspective. Cambridge, United Kingdom, Cambridge University Press, 1983. 76 p.
117. FREE, M.J. Condoms: the rubber remedy. In: Corson, S.L., Derman, R.J., and Tyrer, L.B., eds. Fertility control. Boston, Little, Brown, 1985. p. 257–268.
118. FREE, M.J. Reversible intravasal devices: state of the art. In: Sciarra, J.J., Zatuchni, G.I., and Speidel, J.J., eds. Reversal of sterilization. Hagerstown, Maryland, Harper & Row, 1978. (PARFR Series on Fertility Regulation) p. 64–80.
119. FREE, M.J. and ALEXANDER, N.J. Male contraception without prescription: a reevaluation of the condom and coitus interruptus. Public Health Reports 91(5): 437–445. October 1976.
120. GACHUKIA, E.W. The role of the male in fertility management decisions. Presented at the Conference on Reproductive Health Management in Sub–Sahara Africa, Freetown, Sierra Leone, November 5–8, 1984. 8 p.
121. GIGES, N. AIDS scare could lead nets to run ads for condoms. Advertising Age, December 15, 1986. p. 1, 101.
122. GLASS, R., VESSEY, M., and WIGGINS, P. Use–effectiveness of the condom in a selected family planning clinic population in the United Kingdom. Contraception 10(6): 591–598. December 1974.
123. GOLDBERG, E. and SHELTON, J.A. Immunologic properties of LDH–C4 for contraceptive vaccine development. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 435–446.
124. GOLDMAN, N., PEBLEY, A.R., and WESTOFF, C.F. Probabilities of conception in Latin America. Presented at the meeting of the Population Association of America, San Diego, California, April 30, 1982.
125. GOLDSTEIN, R. Rubber soul: the condom makes a comeback. Village Voice 31(9): 17– , March 4, 1986.
126. GONZALES, B. Experts reach conclusions on vasectomy practice. Communiqué 4(2): 10. August 1983.
127. GORNEY, C. Television tackles a taboo: in network series and local ads, condoms are no longer unmentionable. Washington Post, February 3, 1987. p. E1, E8.
128. GRADY, W.R., HIRSCH, M.B., KEEN, N., and VAUGHAN, B. Differentials in contraceptive use failure among married women aged 15–44 years: United States 1970–76. Washington, D.C., National Center for Health Statistics, [1981]. 42 p. (Mimeo)
129. GRAY, R., KAMBIC, R., BICEGO, G., PEREZ, A., EGER, R., and DOMENICHINI, V. Outcome of pregnancy. [Letter] Fertility and Sterility 44(4): 554–555. October 1985.
130. GUERRERO, R. The aging of gametes: the known and the unknown. Linacre Quarterly 45(4): 345–357. November 1978.
131. GUERRERO, R. and ROJAS, O.I. Spontaneous abortion and aging of human ova and spermatozoa. New England Journal of Medicine 293(12): 573–575. September 18, 1975.
132. GUILLEBAUD, J. Vasectomy: the role of the private and the NHS clinic. In: Roe, J., ed. Sterilisation: services, organisation, procedures. London, Birth Control Trust, 1982. p. 35–39.
133. GULHATI, K. In the hands of men. People 13(1): 3–4. 1986.
134. GULICK, B. (Schmid Laboratories) [Introduction of spermicidal condom in US] Personal communication, September 8, 1986.
135. HACETTEPE INSTITUTE OF POPULATION STUDIES. Turkish Fertility Survey: 1978. First report. Vol. 1: Methodology and findings. [Ankara], Hacettepe Institute of Population Studies, 1980. 213 p.
136. HALL, M.–F. Male attitudes to family planning education in Santiago, Chile. Journal of Biosocial Science 3: 403–416. 1971.
137. HALL, M.–F. Male use of contraception and attitudes toward abortion, Santiago, Chile, 1968. Milbank Memorial Fund Quarterly 48(2, Pt.1): 145–166. April 1970.
*138. HALLOUDA, A.M., AMIN, S.Z., COCHRANE, S.H., and FARID, S.M. The Egyptian Fertility Survey, 1980. Vol. 3: Socio–economic differentials and comparative data from husbands and wives. Cairo, Central Agency for Public Mobilisation and Statistics, 1983. (World Fertility Survey) 106 p.
139. HAQ, M.S. New directions in the government of Bangladesh's vasectomy program. Presented at the Conference on Vasectomy, Colombo, Sri Lanka, October 4–7, 1982. 7 p. (Mimeo)
140. HARLAP, S., SHIONO, P.H., RAMCHARAN, S., GOLBUS, M., BACHMAN, R., MANN, J., and LEWIS, J.P. Chromosomal abnormalities in the Kaiser–Permanente Birth Defects Study, with special reference to contraceptive use around the time of conception. Teratology 31(3): 381–387. June 1985.
141. HART, G. Factors influencing venereal infection in a war environment. British Journal of Venereal Diseases 50(1): 68–72. February 1974.
142. HATCHER, R.A. Condom distribution through family planning clinic patients. December 2, 1986. 4 p. (Unpublished)
143. HATCHER, R.A., GUEST, F., STEWART, F., STEWART, G.K., TRUSSELL, J., and FRANK, E. Contraceptive technology 1984–1985. 12th ed. New York, Irvington Publishers, 1984. 304 p.
144. HAYASHI, H., CEDENHO, A.P., and SADI, A. The mechanism of spontaneous recanalization of human vasectomized ductus deferens. Fertility and Sterility 40(2): 269–270. August 1983.
145. HEISEL, D.F. Fertility limitation among men in rural Kenya. Studies in Family Planning 4(12): 351–355. December 1973.
*146. HEISLER, D. and LEWIS, G.L. The Dominica Male Family Planning Survey Country Report 1982. Rouseau, Dominica, Dominica Planned Parenthood Association, and Columbia, Maryland, Westinghouse Public Applied Systems, August 1985. (Contraceptive Prevalence Surveys) 74 p.
147. HICKS, D.R., MARTIN, L.S., GETCHELL, J.P., HEATH, J.L., FRANCIS, D.P., MCDOUGAL, J.S., CURRAN, J.W., and VOELLER, B. Inactivation of HTLV–III/LAV–infected cultures of normal human lymphocytes by nonoxynol–9 in vitro. Lancet 2(8469–8470): 1422–1423. December 21–28, 1985.
148. HIMES, N.E. Medical history of contraception. New York, Schocken Books, 1970. 521 p.
*149. HOLLERBACH, P.E. Power in families, communication and fertility decision–making. New York, Population Council, January 1980. (Center for Policy Studies Working Paper No. 53) 35 p.
150. HUANG, M.–K. and MA, Y.–M. Epidemiological investigation on the complications following vasectomy. Reproduction and Contraception (China) 6(3): 27, 35–38. 1986.
151. HUBER, D. (Association for Voluntary Surgical Contraception) [The Chinese puncture method of vasectomy] Personal communication, January 21, 1987.
*152. HUBER, D., FATHALLA, M., GOJASENI, P., GOLDSTEIN, M., LIPPES, J., MINOR, K., RAUFF, M., and SCIARRA, J. Trip report: The People's Republic of China (Beijing, Chongqing, Wuhan, Guangzhou), June 19–30, 1985. [New York], Association for Voluntary Sterilization, 1985. 47 p. (Mimeo)
*153. HUBER, D.H., HONG, S., and ROSS, J.A. The international experience with vasectomy. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 7–18.
154. HUBER, S.C., PIOTROW, P.T., POTTS, M., ISAACS, S.L., and RAVENHOLT, R.T. Contraceptive distribution: taking supplies to villages and households. Population Reports, Series J, No. 5. Washington, D.C., Population Information Program, July 1975. 28 p.
155. ILORI, F.D. Sex differentials in attitude to family size in Nigeria and their implications for family planning programmes. In: Chojnacka, H., Olusanya, P.O., and Ojo, F., eds. Population and economic development in Nigeria in the nineteen eighties. (Proceedings of a national workshop, University of Lagos, September 12–14, 1979) New York, United Nations, Department of Technical Co–operation for Development, 1981. (TCD/SEM.81/2) p. 209–219.
156. INDIA. MINISTRY OF HEALTH AND FAMILY WELFARE (MOH). Nirodh programme: a pioneering social marketing project in India. [Brochure] New Delhi, MOH, November 1984. 4 p.
157. INDONESIAN PLANNED PARENTHOOD ASSOCIATION (IPPA). Male involvement in FP in Jambi. IPPA Newsletter, No. 31. March 1985. p. 6.
158. INTERNATIONAL LABOUR OFFICE (ILO). Population education: its place in work–related training. [Booklet] Geneva, ILO, 1978. 11 p.
159. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Action area 6: male participation in family planning. In: IPPF plan 1988–90. London, IPPF, November 1986. p. 17–18.
160. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). IPPF Plan 1985–87. London, IPPF, February 1984. 26 p.
*161. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Male involvement in family planning: report of an IPPF staff consultation. London, IPPF, February 1984. 56 p.
162. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Male involvement in family planning: some approaches for FPAs. London, IPPF, August 1981. 13 p.
163. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Men and family planning—a global view. Concern, No. 20, January–March 1981. p. 1–2.
164. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). CENTRAL EXECUTIVE COMMITTEE. Policy statement on male involvement in family planning. London, IPPF, March 1985. 2 p. (Mimeo)
*165. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Male involvement in family planning: program initiatives. London, IPPF, [1984]. 196 p.
166. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). WESTERN HEMISPHERE REGION (WHR). Sterilizations by sex and percentages of male to female sterilizations and total number of sterilizations as percentage of total new acceptors: 1979–1984. [Tables] [New York], IPPF WHR, [1986]. 3 p.
167. INTERNATIONAL PLANNED PARENTHOOD FEDERATION. Sporting hero launches Australian "Men Too" campaign. IPPF Open File, February 14, 1986. p. 9.
168. INTERNATIONAL PROJECT OF THE ASSOCIATION FOR VOLUNTARY STERILIZATION (IPAVS). Minimum medical service standards for male voluntary surgical contraception programs. New York, IPAVS, 1980. 32 p.
169. JAGDEO, T.P. Contraceptive prevalence in St. Kitts–Nevis. New York, International Planned Parenthood Federation, 1985. (IPPF/WHR Caribbean Contraceptive Prevalence Surveys, No. 1—St. Kitts–Nevis) 126 p.
170. JAMAICA. NATIONAL FAMILY PLANNING BOARD. Male education update. Man Talk 1(1): 7. September 1985.
171. JAMAICA. NATIONAL FAMILY PLANNING BOARD. ADOLESCENT FERTILITY RESOURCE CENTRE (AFRC). Male responsibility programme. AFRC Newsletter, June 1985. p. 5.
172. JAMAICA. NATIONAL FAMILY PLANNING BOARD. ADOLESCENT FERTILITY RESOURCE CENTRE (AFRC). Teenage pregnancy advertising campaign. AFRC Newsletter, June 1985. p. 1.
173. JEZOWSKI, T.W. and AHMAD, J.S. The experience of the Association for Voluntary Sterilization in supporting vasectomy programs. Presented at the Conference on Vasectomy, Colombo, Sri Lanka, October 4–7, 1982. 22 p.
174. JICK, H., HANNAN, M.T., STERGACHIS, A., HEIDRICH, F., PERERA, D.R., and ROTHMAN, K.J. Vaginal spermicides and gonorrhea. Journal of the American Medical Association 248(13): 1619–1621. October 1, 1982.
175. JOHN SNOW INC. (JSI). Enterprise program activities update: December 1986. Arlington, Virginia, JSI, 1986. (Mimeo) 19 p.
176. JOHN SNOW INC. (JSI). The Enterprise Program. [Brochure] Arlington, Virginia, JSI, [1986]. 5 p.
177. JOHNSTON, J.A., ROBERTS, D.B., and SPENCER, R.B. A survey evaluation of the efficacy and efficiency of natural family planning services and methods in Australia: report of a research project. Sydney, Australia, St. Vincent's Hospital, 1978. 436 p.
178. JOSEPH, F.G. Psychosocial aspects of family planning in Kenya. In: David, H.P., ed. Proceedings of the Conference on Psychology and Family Planning, (August 1–2, 1971, Nairobi, Kenya) Bethesda, Maryland, Transnational Family Research Institute, 1972. p. 72–77.
179. KAMBIC, R., KAMBIC, M., BRIXIUS, A.M., and MILLER, S. A thirty month clinical experience in natural family planning: some client characteristics and effectiveness in avoiding pregnancies. [1981] 22 p. (Unpublished)
180. KASAMBIRA, K. The use of radio in family planning in Zimbabwe: a case study. [1986]. 10 p. (Unpublished)
181. KEITH, L., BERGER, G.S., and MOSS, W. Cervical gonorrhea in women using different methods of contraception. Journal of the American Venereal Disease Association 3(1): 17–19. September 1976.
182. KEITH, L., KEITH, D., BUSSELL, R., and WELLS, J. Attitudes of men toward contraception. Archiv fuer Gynaekologie 220(2): 87–97. 1975.
183. KEITH, L., SWARTWOUT, J., HAKSAR, K., and GREEN, R. Male attitudes toward family planning: a preliminary survey. Chicago Medical School Quarterly 30(2–4): 59–63. 1971.
184. KENDRICK, J.S. and RUBIN, G.L. Vasectomies performed by private physicians, United States, 1980–1984. Fertility and Sterility 46(3): 528–530. September 1986.
185. KESSLER, R. and FREIHA, F. Macroscopic vasovasostomy. Fertility and Sterility 36(4): 531–532. October 1981.
186. KHAN, M.E. and PRASAD, C.V.S. A comparison of 1970 and 1980 survey findings on family planning in India. Studies in Family Planning 16(6): 312–320. November–December 1985.
187. KIPPLEY, J. and KIPPLEY, S. The art of natural family planning. Cincinnati, Ohio, Couple to Couple League International, 1979. 256 p.
188. KLEINMAN, R.L., ed. Family planning handbook for doctors. London, International Planned Parenthood Federation, 1980. 243 p.
189. KNAUS, H. Die periodische Frucht– und Unfruchtbarkeit des Weibes. [Periodic fertility and infertility in women.] [GER] Zentralblatt für Gynäkologie 57(24):

1393. June 1933.
190. KNUTH, U.A., BEHRE, H., BELKIEN, L., BENTS, H., and NIESCHLAG, E. 19-nortestosterone for male fertility regulation. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 320–328.
191. KOFFMAN, M. (Family Planning International Assistance) [Nigeria Contraceptive Social Marketing Program] Personal communication, November 3, 1986.
192. KOREA INSTITUTE FOR POPULATION AND HEALTH (KIPH). [1985 fertility and family health survey.] [KOR] Seoul, Korea, KIPH, 1985. p. 76–77.
*193. KRYSTALL, E. Private sector family planning. Populi 12(3): 34–39. 1985.
194. KUHR, M.D. Neural-tube defects and mid-cycle abstinence: a test of the "over-ripeness" hypothesis in man. Developmental Medicine and Child Neurology 19(5): 589–592. October 1977.
195. KUSEMIJU, B. (Planned Parenthood Federation of Nigeria) [Male involvement projects in Nigeria] Personal communication, September 16, 1986.
196. KWANSA, E. [PPF consultation on male involvement in family planning: the Ghanaian experience. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: program initiatives. London, IPPF, [1984]. p. 68–80.
*197. LADIPO, O.A., NICHOLS, D.I., PAXMAN, J.M., DELANO, G., KELLY, S.E., and OTOLORIN, E.O. Sexual behavior, contraceptive practice and reproductive health among the young unmarried population in Ibadan, Nigeria: final report. July 1983. 67 p. (Unpublished)
198. LAING, J.E. Differentials in contraceptive use-effectiveness in the Philippines. Studies in Family Planning 5(10): 302–313. October 1974.
*199. LALA, E.S. Male involvement in family planning: strategies for action. Population Education News, July 1985. p. 10–13.
200. LAM, P. The Family Planning Association of Hong Kong (FPAHK): male responsibility promotion. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning. London, IPPF, [1984]. p. 97–111.
201. LAM, P. (Family Planning Association of Hong Kong (FPAHK)) [FPAHK activities for young people] Personal communication, December 31, 1986.
202. LAM, P. (Family Planning Association of Hong Kong) [New "Mr. Able" male responsibility campaign] Personal communication, November 14, 1986.
203. LAM, P. (Family Planning Association of Hong Kong) [Trends in male contraception acceptors in Hong Kong] Personal communication, August 28, 1986.
204. LAMPTEY, P., NICHOLAS, D.D., OFOSU-AMAAH, S., and LOURIE, I.M. An evaluation of male contraceptive acceptance in rural Ghana. Studies in Family Planning 9(8): 222–226. August 1978.
205. LANDRY, E. and PURSER, S. Strategies for reducing male opposition to family planning. (Final report) May 1986. 28 p. (Unpublished)
206. LANDRY, E.G., McINTYRE, D., and JACOB, J. Teens in Dominica: what do they know about family life education? (Final report) May 1986. 27 p. (Unpublished)
207. LEDGER, W.J. Relationship of pelvic infection to various types of contraception. Clinical Obstetrics and Gynecology 17(1): 79–91. March 1974.
208. LEE POY, P. (International Planned Parenthood Federation, Western Hemisphere Region) [Male responsibility projects in the Caribbean] Personal communication, September 22, 1986.
209. LEE, H.Y. and MEMBERS OF THE VASECTOMY STUDY PROJECT, SEOUL NATIONAL UNIVERSITY HOSPITAL. Observations of the results of 300 vasovasostomies. Journal of Andrology 1(1): 11–15. January-February 1980.
210. LESOTHO DISTANCE TEACHING CENTRE (THERO EA MALAPA LESOTHO). and LESOTHO FAMILY PLANNING ASSOCIATION. Thabo's home coming. [Booklet] [Maseru], Lesotho, Lesotho Distance Teaching Centre and Lesotho Family Planning Association, 1977. 12 p.
211. LESOTHO DISTANCE TEACHING CENTRE. The use of photo-strips in family planning education. [1977.] 24 p. (Unpublished)
212. LEWIS, D.H. and ASCH, R.H. Preclinical evaluations of injectable testosterone microcapsules. [Abstract] Advances in Contraception 2(3): 266–267. September 1986.
213. LEWIS, D.H., TICE, T.R., and BECK, L.R. Overview of controlled release systems for male contraception. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 336–346.
*214. LEWIS, G.L. and HEISLER, D. The Barbados Male Family Planning Survey country report 1982. Columbia, Maryland, Westinghouse Public Applied Systems and Bridgetown, Barbados, Barbados Family Planning Association, August 1985. (Contraceptive Prevalence Surveys) 68 p.
*215. LEWIS, G.L. and HEISLER, D. The St. Kitts-Nevis Male Family Planning Survey country report 1982. Columbia, Maryland, Westinghouse Public Applied Systems and Basseterre, St. Kitts, St.Kitts-Nevis Family Planning Association, August 1985. (Contraceptive Prevalence Surveys) 70 p.
*216. LI, S. and ZHU, J. Percutaneous injection of vas deferens for sterilization: ten years follow-up on 671 cases. Chongqing, China, Chongqing Family Planning Scientific Research Institute, 1986. 11 p. (Mimeo)
217. LISKIN, L., KAK, N., RUTLEDGE, A.H., SMIT, L.C., and STEWART, L. Youth in the 1980s: social and health concerns. Population Reports, Series M, No. 9. Baltimore, Johns Hopkins University, Population Information Program, November-December 1985. 40 p.
218. LISKIN, L., PILE, J.M., and QUILLIN, W.F. Vasectomy—safe and simple. Population Reports, Series D, No. 4. Baltimore, Johns Hopkins University, Population Information Program, November-December 1983. 40 p.
219. LISKIN, L.S. and FOX, G. Periodic abstinence: how well do new approaches work? Population Reports, Series I, No. 1. Baltimore, Johns Hopkins University, Population Information Program, September 1981. 40 p.
*220. LONDON, K., CUSHING, J., RUTSTEIN, S.O., CLELAND, J., ANDERSON, J.E., MORRIS, L., RUTSTEIN, S.O., and MOORE, S.H. Fertility and family planning surveys: an update. Population Reports, Series M, No. 8. Baltimore, Johns Hopkins University, Population Information Program, September-October 1985. 60 p.
221. LOTTER, J.M. Attitudes of black South African men towards fertility and family planning. Pretoria, South Africa, South African Human Sciences Research Council, 1977. (Research Finding No. S-N-96) 16 p.
222. MANOFF, R.K. Social marketing: new imperative for public health. New York, Praeger, 1985. 293 p.
223. MARKET RESEARCH SERVICES (MRS). A qualitative assessment of attitudes towards and usage of contraceptives among Jamaican males. Kingston, Jamaica, MRS, April 1984. (MRS Report No. 487) 26 p.
224. MARSHALL, J. Planning for a family: an atlas of temperature charts. London, Faber and Faber, 1965. 159 p.
225. MARSHALL, J. The infertile period: principles and practice. Baltimore, Helicon Press, 1963. 118 p.
*226. MASSEY, F.I., BERNSTEIN, G.S., O'FALLON, W.M., et al. Vasectomy and health: results from a large cohort study. Journal of the American Medical Association 252(8): 1023–1029. August 24–31, 1984.
227. MASSEY, F.I., BERNSTEIN, G.S., SCHUMAN, L.M., and O'FALLON, W.M. Results from the Collaborative Vasectomy Study. Presented at the 11th Annual Meeting of the American Public Health Association, Dallas, Texas, November 13–17, 1983.
228. MASTERS, W.H. and JOHNSON, V.E. Human sexual response. Boston, Little, Brown, 1966. 366 p.
229. MAURITIUS FAMILY PLANNING ASSOCIATION (MFPA). Male responsibility in family planning. (Project description) In: 1986 work programme-budget. Port Louis, Mauritius, MFPA, [1985]. p. 33–34.
230. McCALISTER, D. and THIESSEN, V. Prediction in family planning: prediction of the adoption and continued use of contraception. American Journal of Public Health 60(8): 1372–1381. August 1970.
231. MCCLURE, Z. Failure rates of contraceptive methods. Family Planning Information Service 1(6): 59–61. April 1981.
232. McGUIRE, R. First male contraceptive on horizon? Medical Tribune 27(27): 1, 22. September 24, 1986.
233. MEDINA, J.E., CIFUENTES, A., ABERNATHY, J.E., SPIELER, S.M., and WADE, M.D. Comparative evaluation of two methods of natural family planning in Colombia. American Journal of Obstetrics and Gynecology 138(8): 1142–1147. December 15, 1980.
234. MENZIES, H.D. Back to a basic contraceptive. New York Times, January 5, 1986.
235. MEREDITH, P. (International Planned Parenthood Federation) [FPA activities with the armed forces in Turkey] Personal communication, January 16, 1987.
236. MILLIGAN, A. The forgotten men of Kenya. People 13(1): 10–11. 1986.
237. MILLS, A. Barrier contraception. Clinics in Obstetrics and Gynaecology 11(3): 641–660. December 1984.
238. MISRA, B.D. Comparison of husbands' and wives' attitudes toward family planning. Journal of Family Welfare 12(4): 9–23. June 1966.
239. MISRA, B.D. Correlates of males' attitudes towards family planning. In: Bogue, D.J., ed. Sociological contributions to family planning research. Chicago, University of Chicago, Community and Family Study Center, 1967. p. 161–271.
240. MISRA, S. Poignant problems. People 10(4): 6–7. 1983.
241. MITCHELL, R.E. Husband-wife relations and family-planning practices in urban Hong Kong. Journal of Marriage and the Family 34(1): 139–145. February 1972.
*242. MONROY DE VELASCO, A. Integrating sexual orientation into health services for adolescents: a Latin American experience. 1985. 16 p. (Unpublished)
243. MOORE, A. and MURPHY, P. Attitudes, knowledge and the extent of use of artificial contraception in social classes 4 and 5 in Ireland. Journal of the Irish Medical Association 73(9): 342–347. September 1980.
244. MORRIS, L., LEWIS, G., POWELL, D.L., ANDERSON, J., WAY, A., CUSHING, J., and LAWLESS, G. Contraceptive Prevalence Surveys: a new source of family planning data. Population Reports, Series M, No. 5. Baltimore, Johns Hopkins University, Population Information Program, May-June 1981. 40 p.
*245. MORRIS, L., NUNEZ, L., MONROY DE VELASCO, A., BAILEY, P., CARDENAS, C., and WHATLEY, A. Sexual experience and contraceptive use among young adults in Mexico City. Presented at the meeting of the U.S.-Mexico Border Public Health Conference, Monterrey, Mexico, April 19, 1986. 25 p.
246. MOSHER, W.D. and BACHRACH, C.A. First premarital contraceptive use: United States, 1960's-1982. August 1986. 45 p. (Unpublished)
247. MOSHER, W.D. and WESTOFF, C.F. Trends in contraceptive practice: United States, 1965–76. NCHS Vital and Health Statistics, Series 23, No. 10. February 1982. (Data from the National Survey of Family Growth) 52 p.
248. MOSS, W.M. (Doctors Family Planning Medical Group, Inc.) [Open-ended vasectomy] Personal communication, February 9, 1987.
249. MOSS, W.M. Vasectomy failure after use of an open-ended technique. [Letter] Fertility and Sterility 43(4): 667. April 1985.
250. MUKHERJEE, B.N. The role of husband-wife communication in family planning. Journal of Marriage and the Family 37(3): 655–667. August 1975.
251. MUMFORD, S.D. The implications of the decision-making process and counseling for vasectomy programs. Presented at the Conference on Vasectomy, Colombo, Sri Lanka, October 4–7, 1982. 13 p.
252. MUMFORD, S.D. The vasectomy decision-making process. Studies in Family Planning 14(3): 83–88. March 1983.
253. MUSALLAM, B.F. Sex and society in Islam: birth control before the nineteenth century. Cambridge, UK, Cambridge University Press, 1983. 176 p.
*254. MUSTAFA, M.A.B. and MUMFORD, S.D. Male attitudes towards family planning in Khartoum, Sudan. Journal of Biosocial Science 16(4): 437–449. October 1984.
255. NAEYE, R.L. The role of the pathologist in the developing world. In: Philpott, R.H., ed. Maternity services in the developing world: what the community needs. London, Royal College of Obstetricians and Gynaecologists, 1979. p. 19–38.
256. NAEYE, R.L. and ROSS, S. Coitus and chorioamnionitis: a prospective study. Early Human Development 6(1): 91–97. January 1982.
257. NAIR, N.K. Fertility and family planning in Barbados: findings from the Contraceptive Prevalence Survey 1980–81. Columbia, Maryland, Westinghouse Health Systems, 1982. (Contraceptive Prevalence Surveys) 144 p.
258. NATIONAL COORDINATING GROUP ON MALE ANTI-FERTILITY AGENTS. Gossypol—a new antifertility agent for males. Chinese Medical Journal 4(6): 417–428. November 1978.
*259. NATIONAL URBAN LEAGUE (NUL). Male responsibility programs and activities descriptions. [New York], NUL, [1986]. 6 p.
260. NATIONAL URBAN LEAGUE (NUL). NUL's male responsibility campaign to be expanded. New York, NUL, May 23, 1986. 3 p. (Press release)
261. NATIONAL URBAN LEAGUE. Affiliates back drive to reach teens. ADAPP News, No. 2, March 1986. p. 3, 5, 8.
*262. NATIONAL URBAN LEAGUE. Update on male responsibility campaign. ADAPP News, No. 3, July 1986. p. 2.
263. NIESCHLAG, E. Reasons for abandoning immunization against FSH as an approach to male fertility regulation. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 395–400.
264. NIESCHLAG, E., MICHEL, E., and WEINBAUER, G.F. Preclinical and clinical trials with LHRH agonists and antagonists. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 369–375.
265. NIRAPATHPONGPORN, A. and VIRAVAIDYA, M. Clients referral system of the community-based voluntary sterilization project. Presented at the 5th International Conference on Voluntary Surgical Contraception, Santo Domingo, Dominican Republic, December 5–8, 1983. 13 p.
266. NIRAPATHPONGPORN, A., HAYSSEN, J., and VIRAVAIDYA, M. The King's Birthday Vasectomy Festival: a world record for male voluntary surgical contraception. Bangkok, Thailand, Population and Community Development Association, July 1984. 12 p. (Mimeo)
267. NOLASCO, A.D. Male concepts: on masculinity, parenthood and family planning. Population Forum 7(1): 6–8. 1981.
268. NORTMAN, D.L. Population and family planning programs: a compendium of data through 1983. 12th ed. New York, Population Council, 1985. 58 p.
269. O'BRIEN, D. (John Snow Inc./The Enterprise Program) [Subprojects with companies in Indonesia and Nigeria] Personal communication, September 19, 1986.
270. O'DONNELL, N. High tech natural family planning: the future of fertility control? Presented at the 4th National Natural Family Planning Conference, Washington, D.C., November 3–6, 1985. 7 p.
271. OECHSLI, F.W. Studies of the consequences of contraceptive failure: final report. Berkeley, California, University of California, Berkeley, April 8, 1976. 20 p.
272. OGAZON, A. (Family Planning International Assistance) [Male distributors in CEMOPLAF CBD program in Ecuador] Personal communication, December 12, 1986.
273. OGINO, K. Ovulationstermin und Konzeptionstermin. [Ovulation day and conception day.] [GER] Zentralblatt für Gynäkologie 54(8): 464–479. February 1930.
274. OJEIFO, J.O. and SINGH, B. Paternal health services: a missing link in family health services. Presented at the 11th Annual NCIH International Health Conference, Arlington, Virginia, June 10–13, 1984. 28 p.
275. OLUKOYA, A.A. The changing attitude and practice of men regarding family planning in Lagos, Nigeria. Public Health (London) 99(6): 349–355. November 1985.
276. ONYANGO-OMUODO, D. Promoting male responsibility in family planning in the Africa region. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, [1984]. p. 9–12.
277. ORR, M.T., FORREST, J.D., JOHNSON, J.H., and TOLMAN, D.L. The provision of sterilization services by private physicians. Family Planning Perspectives 17(5): 216–220. September-October 1985.
278. OWEN, E.R. and KAPILA, H. Technique and reasons for successful vasectomy reversals in over 400 cases. In: Semm, K. and Mettler, L., eds. Human reproduction: proceedings of 3rd World Congress, Berlin, March 22–26, 1981. Amsterdam, Excerpta Medica, 1981. (International Congress Series No. 551) p. 442–445.
279. PAGE, H.J. and LESTHAEGHE, R., eds. Child-spacing in tropical Africa: traditions and change. London, Academic Press, 1981. 332 p.
280. PAI, D.N. The use of vasectomy as a family planning method in India (past and present). Presented at the Conference on Vasectomy, Colombo, Sri Lanka, October 4–7, 1982. 5 p.
281. PALAN, V.T. Male involvement in family planning: an ESEAOR perspective. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, [1984]. p. 18–33.
282. PANDE, B.R. The role of male sterilization in family planning programs. In: Schima, M.E. and Lubell, I., eds. Voluntary sterilization: a decade of achievement. New York, Association for Voluntary Sterilization, 1980. p. 116–121.
*283. PARK, D.E. How Korea turned the tide of male indifference. People 13(1): 22–24. 1986.
284. PARK, H.J., CHUNG, K.K., and HAN, D.S. Role of husbands in family planning. Journal of Family Planning Studies 3: 22–34. April 1976.
285. PARKIN, D.J. The Luo living in Kampala, Uganda, Nairobi and central Nyanza, Kenya. In: Molnos, A. Innovations and communication. Nairobi, East African Publishing House, 1972. (Cultural Source Materials for Population Planning in East Africa, Vol. 2) p. 281–287.
286. PATE, D. (Rush Presbyterian St. Luke's Medical Center, Male Adolescent Program) [Male Adolescent Program activities] Personal communication, October 4, 1986.
287. PATHFINDER FUND. Implementation of vasectomy services in family planning integrated and non-integrated clinics. [Project summary] [1986]. 4 p. (Unpublished)
288. PAULSEN, C.A. Androgen-progestogen combinations. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 300–303.
289. PAULSEN, C.A., BRENNER, W.J., MATSUMOTO, A.M., ADAMS, I.W., and STEINER, R.A. Hormonal approaches to

the regulation of male fertility. [Abstract] Advances in Contraception 2(3): 272–273. September 1986.
290. PEEL, J. A male-oriented fertility control experiment. Practitioner 202: 677–681. May 1969.
291. PEEL, J. The Hull family survey: 2. Family planning in the first 5 years of marriage. Journal of Biosocial Science 4(3): 333–346. July 1972.
292. PEMBERTON, J., MCCANN, J.S., MAHONY, J.D.H., MACKENZIE, G., DOUGAN, H., and HAY, I. Socio-medical characteristics of patients attending a V.D. clinic and the circumstances of infection. British Journal of Venereal Disease 48(5): 391–396. October 1972.
293. PHADKE, G.M. and PHADKE, A.G. Experiences in the re-anastomosis of the vas deferens. Journal of Urology 97(5): 888–890. May 1967.
294. PIERCE, R.M. and ROWNTREE, G. Birth control in Britain: Pt. 2. Population Studies 15: 121–160. 1962.
295. PLANNED PARENTHOOD ASSOCIATION OF THAILAND. FP and FLE to enlist soldiers and metropolitan police communities. [1986]. 3 p. (Unpublished)
296. PLANNED PARENTHOOD FEDERATION OF AMERICA (PPFA). American teens speak: sex, myths, TV, and birth control. New York, PPFA, 1986. 111 p.
297. PLANNED PARENTHOOD OF CENTRAL OHIO (PPCO). A report on Planned Parenthood of Central Ohio's campaign to reach teenage boys. Columbus, Ohio, PPCO, 1983. 3 p. (Mimeo)
298. POFFENBERGER, T. and POFFENBERGER, S.B. The social psychology of fertility behavior in a village in India. In: Fawcett, J.T., ed. Psychological perspectives on population. New York, Basic Books, 1973. p. 135–162.
299. POFFENBERGER, T., POFFENBERGER, S.B., PANDYA, B., PATEL, R., PATEL, S., PARIKH, T., MOHTA, K., and PATEL, M. Husband-wife communication and motivational aspects of population control in an Indian village. New Delhi, Central Family Planning Institute (CFPI), December 1969. (CFPI Monograph Series No. 10) 118 p.
300. POPULATION COMMUNICATION SERVICES. Generic condom promotion in Colombia: final report summary. Baltimore, Johns Hopkins University, Population Information Program, 1986. 5 p. (Mimeo)
301. POPULATION COUNCIL (PC). The Population Council 1985 annual report. New York, PC, 1986. 92 p.
302. POPULATION COUNCIL (PC) and PIACT DE MEXICO (PIATA). Family planning in Mexico: a comprehensive marketing study of awareness, attitudes, and practices among consumers and retailers. New York, PC and PIATA, December 1979. 109 p.
303. POPULATION CRISIS COMMITTEE. Issues in contraceptive development. Population (Washington), No. 15, May 1985. 16 p.
304. POPULATION PROBLEMS RESEARCH COUNCIL (PPRC) and MAINICHI NEWSPAPERS. Summary of fourteenth national survey on family planning. Tokyo, PPRC and Mainichi Newspapers, September 1978. 147 p.
*305. POPULATION PROBLEMS RESEARCH COUNCIL (PPRC) and MAINICHI NEWSPAPERS. Summary of eighteenth national survey on family planning. Tokyo, PPRC and Mainichi Newspapers, August 1986. 175 p.
306. POPULATION PROBLEMS RESEARCH COUNCIL and MAINICHI NEWSPAPERS. Second survey—1952: actual situation of birth control. In: Family planning in Japan. Tokyo, Japanese Organization for International Cooperation in Family Planning, [1972]. p. 134–143.
307. POPULATION SERVICES INTERNATIONAL. Bangladesh distribution log. [Tables] 1986. 6 p. (Unpublished)
308. POSTIC, B., SINGH, B., SQUEGLIA, N.L., and GUEVARRA, L.O. Inactivation of clinical isolates of *Herpesvirus hominis*, types 1 and 2, by chemical contraceptives. Sexually Transmitted Diseases 5(1): 22–24. January-March 1978.
309. POSTON, D.L., Jr. Patterns of contraceptive use in China. Studies in Family Planning 17(5): 217–227. September–October 1986.
*310. POTTS, M. Coitus interruptus. In: Corson, S.L., Derman, R.I., and Tyrer, L.B., eds. Fertility control. Boston, Little, Brown, 1985. p. 299–305.
311. POTTS, M. (Family Health International) [Vasectomy study in South Korea] Personal communication, December 29, 1986.
312. POTTS, M. and DIGGORY, P. The condom. In: Textbook of contraceptive practice. 2nd ed. Cambridge, England, Cambridge University Press, 1983. p. 106–118.
313. POTTS, M. and DIGGORY, P. Traditional methods. In: Textbook of contraceptive practice. 2nd ed. Cambridge, England, Cambridge University Press, 1983. p. 74–83.
314. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. Condom provides protection against major STDs. Outlook 4(2): 9–10. June 1986.
315. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. New technologies for predicting ovulation. Outlook 4(3): 8–10. December 1986.
316. PROMOÇÃO DA PATERNIDADE RESPONSÁVEL (PRO PATER) and POPULATION COUNCIL (PC). Medida da eficácia e custo-eficácia da promoção de serviços de vasectomia através de campanha publicitária. [Measuring the effectiveness and cost-effectiveness of promoting vasectomy services through a media campaign.][POR] São Paulo, Brazil and Lima, Peru, PRO-PATER and PC, 1986. 28 p. (Mimeo)
317. QUINN, J. (Ansell Americas) [Condom with larger quantity of spermicide; condom distribution in Africa] Personal communication, February 4, 1987.
318. QUINN, J. (Ansell Corporation) [Quantities of condoms supplied to US Agency for International Development] Personal communication, September 8, 1986.
319. QUINN, J.J. Condoms: manufacturing perspectives and use. In: Zatuchni, G.I., Sobrero, A.J., Speidel, J.J., and Sciarra, J.J., eds. Vaginal contraception: new developments. Hagerstown, Maryland, Harper & Row, 1979. (PARFR Series on Fertility Regulation) p. 67–81.
320. LESOTHO PLANNED PARENTHOOD ASSOCIATION (LPPA). Male motivation. In: 1985 annual report. Maseru, Lesotho, LPPA, [1986]. p. 38–39.
321. RABE, T., KIESEL, L., and RUNNEBAUM, B. Future aspects in contraception: an overview. In: Runnebaum, B., Rabe, T., and Kiesel, L., eds. Future aspects in contraception: Pt. 1. Male contraception. Boston, MTP Press, 1985. p. 1–127.
322. RAHMAN, M. Male involvement in family planning: need—experience. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, [1984]. p. 119–126.
323. RAINWATER, L. And the poor get children: sex, contraception, and family planning in the working class. Chicago, Quadrangle Books, 1960. 202 p.
324. REDMOND, M.A. Attitudes of adolescent males toward adolescent pregnancy and fatherhood. Family Relations 34(3): 337–342. July 1985.
325. RICE, F.J., LANCTOT, C.A., and GARCIA-DEVASA, C. Biological effectiveness of the sympto-thermal rhythm method—an international study: a preliminary report. Acta Medica Romana 16(3): 349–356. 1978.
326. RICHARDS, J.H. New wine in old bottles. [Geneva, International Labour Organization, 1986.] 8 p. (Mimeo)
327. RICHARDS, J.H. The ILO Population/Family Welfare Education Programme. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: program initiatives. London, IPPF, [1984]. p. 177–183.
328. RICHARDSON, A.C. and LYON, J.B. The effect of condom use on squamous cell cervical intraepithelial neoplasia. American Journal of Obstetrics and Gynecology 140(8): 909–913. August 15, 1981.
329. ROBERTS, H. Male hegemony in family planning. In: Women, health and reproduction. London, Routledge and Kegan Paul, 1981. p. 1–17.
330. ROCK, J. Calendar rhythm: general considerations. In: Calderone, M.S., ed. Manual of family planning. 2nd ed. Baltimore, Williams and Wilkins, 1970. p. 376–381.
331. ROETZER, J. Fine points of the sympto-thermic method of natural family planning. No. 2. Collegeville, Minnesota, Human Life Center, St. John's University, October 1977. 36 p.
*332. ROSS, J.A., HONG, S., and HUBER, D.H. Voluntary sterilization: an international fact book. New York, Association for Voluntary Sterilization, 1985. 118 p.
333. ROWNTREE, G. and PIERCE, R.M. Birth control in Britain: Pt. 1. Population Studies 15: 3–31. 1962.
334. RUSH PRESBYTERIAN ST. LUKE'S MEDICAL CENTER. For teenage men only: the Male Adolescent Program. [Brochure] Chicago, Rush Presbyterian St. Luke's Medical Center, 1986. 4 p.
335. SANTISO GALVEZ, R. Vasectomy in Guatemala. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, [1984]. p. 132–166.
336. SANTOS DE GARZA, Y., DIAZ DE MAY, E., TOWNSEND, J.W., and ROSENHOUSE, S. Operations research to test alternative strategies for providing sex education and family planning services to young adults in Mexico. Presented at the 114th Annual Meeting of the American Public Health Association, Las Vegas, Nevada, September 28–October 2, 1986. 20 p.
337. SARASWATHI, T.S. and GUPTA, R. Fertility, family planning and the status of women. Journal of Family Welfare 32(1): 16–24. September 1985.
338. SCHELLSTEDE, W. (Population Services International) [Condom sales through commercial distributors and the contraceptive social marketing program in Bangladesh] Personal communication, February 11, 1987.
339. SCHMIDT, S.S. and MORRIS, R.R. Spermatic granuloma: the complication of vasectomy. Fertility and Sterility 24(12): 941–947. December 1973.
340. SEETHALAKSHMI, A.G. A study on intra-spouse communication. Bulletin of the Institute of Rural Health and Family Planning 4(3): 59–79. June 1969.
341. SENANAYAKE, P. Male contraception today. In: International Planned Parenthood Federation (IPPF). Male involvement in family planning: programme initiatives. London, IPPF, 1984. p. 187–196.
342. SENEVIRATNE, G. Setting standards for the condom. People 12(1): 35. 1985.
343. SHAH, N.M. The role of interspousal communication in adoption of family planning methods: a couple approach. Pakistan Development Review 13(4): 452–469. Winter 1974.
344. SHAIN, R.N. and JENNINGS, V.H. The influence of sex roles on fertility. In: Shain, R.N. and Pauerstein, C.J., eds. Fertility control: biologic and behavioral aspects. Hagerstown, Maryland, Harper & Row, 1980. p. 277–289.
345. SHAPIRO, E.I. and SILBER, S.J. Open-ended vasectomy, sperm granuloma, and postvasectomy orchialgia. Fertility and Sterility 32(5): 546–550. November 1979.
346. SHEDLIN, M.G. and HOLLERBACH, P.E. Modern and traditional fertility regulation in a Mexican community: factors in the process of decision making. New York, Population Council, September 1978. (Center for Policy Studies Working Papers) 43 p.
347. SHEEHAN, M.K., OSTWALD, S.K., and ROTHENBERGER, J. Perceptions of sexual responsibility: do young men and women agree? Pediatric Nursing 12(1): 17–21. January–February 1986.
348. SHERRIS, J.D. and FOX, G. Infertility and sexually transmitted disease: a public health challenge. Population Reports, Series L, No. 4. Baltimore, Johns Hopkins University, Population Information Program, July 1983. 40 p.
349. SHERRIS, J.D., LEWISON, D., and FOX, G. Update on condoms—products, protection, promotion. Population Reports, Series H, No. 6. Baltimore, Johns Hopkins University, Population Information Program, September–October 1982. 36 p.
350. SHERRIS, J.D., RAVENHOLT, B.B., BLACKBURN, R., GREENBERG, R.H., KAK, N., PORTER, R.W., 3rd, and SAUNDERS, S. Contraceptive social marketing: lessons from experience. Population Reports, Series J, No. 30. Baltimore, Johns Hopkins University, Population Information Program, July–August 1985. 40 p.
351. SIASSI, I. The psychiatrist's role in family planning. American Journal of Psychiatry 129(1): 80–85. July 1972.
352. SIBOULET, A. Maladies sexuelles transmissibles: intérêt des traitements prophylactiques. [Sexually transmitted diseases: importance of prophylactic treatment.] [FRE] Prophylaxie Sanitaire et Morale 44(5): 155–159. November-December 1972.
353. SILBER, S.J. Microsurgery for vasectomy reversal and vasoepididymostomy. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PARFR Series on Fertility Regulation) p. 54–69.
354. SILBER, S.J. Reversal of vasectomy and the treatment of male infertility: role of microsurgery, vasoepididymostomy, and pressure-induced changes of vasectomy. Urologic Clinics of North America 8(1): 53–62. February 1981.
355. SILBER, S.J. Vasectomy and vasectomy reversal. In: Wallach, E.E. and Kempers, R.D., eds. Modern trends in infertility and conception control. Baltimore, Williams and Wilkins, 1979. p. 286–301.
356. SILBER, S.J. Vasectomy and vasectomy reversal. Fertility and Sterility 29(2): 125–240. February 1978.
357. SIMPSON, J.L. Genetic consequences of aging sperm or aging ova: animal studies and relevance to humans. In: Sciarra, J.J., Zatuchni, G.I., and Speidel, J.J., eds. Risks, benefits and controversies in fertility control. Hagerstown, Maryland, Harper & Row, 1978. (PARFR Series on Fertility Regulation) p. 506–519.
358. SINGARIMBUN, M. and MANNING, C. Knowledge and attitudes to family planning and induced abortion. In: Fertility and family planning in Mojolama. Yogyakarta, Indonesia, Gadjah Mada University, Institute of Population Studies, 1974. p. 128–147.
359. SINGH, B. and CUTLER, J.C. Vaginal contraceptives for prophylaxis against sexually transmissible diseases. In: Zatuchni, G.I., Sobrero, A.J., Speidel, J.J., and Sciarra, J.J., eds. Vaginal contraception: new developments. Hagerstown, Maryland, Harper & Row, 1979. p. 175–185.
360. SMITH, J.C., WARREN, C.W., and GARCIA NUNEZ, J. The U.S.-Mexico border: contraceptive use and maternal health care in perspective. El Paso, Texas, United States-Mexico Border Health Association, 1983. 110 p.
361. SMITH, L., Jr., LEWIS, G.L., and LAWSON, J.E., Jr. Male knowledge and use of contraception in three Caribbean islands: results from the 1983 Contraceptive Prevalence Survey. [Tables] Presented at the 112th Annual Meeting of the American Public Health Association, Anaheim, California, November 11–15, 1984. 15 p.
*362. SOCIAL MARKETING FOR CHANGE (SOMARC). CSM-SOMARC project in Mexico. [Washington, D.C., Futures Group, 1986]. 6 p. (Mimeo)
363. SOCIAL MARKETING FOR CHANGE (SOMARC). Ghana CSM program launched. [Brochure] Washington, D.C., Futures Group, [1986]. 4 p.
364. SOCIAL MARKETING FOR CHANGE (SOMARC). IKB-SOMARK project underway. Washington, D.C., Futures Group, [1986]. 6 p. (Mimeo)
365. SOCIAL MARKETING FOR CHANGE (SOMARC). Mexico CSM project: radio campaign for PROTEKTOR condoms. [Project summary] 1986. 3 p. (Unpublished)
366. SOCIAL MARKETING FOR CHANGE (SOMARC). Trip report: Bogota, Colombia: June 23, 1985–June 30, 1985. Washington, D.C., Futures Group, 1985. 8 p.
367. SOCIAL MARKETING FOR CHANGE. Advisory board approves Pakistan SMC marketing plan. Social Marketing Update 6(3): 4. Fall 1986.
368. SOW, F. Men are getting involved. Family Health and Communication (URTNA), No. 2, February 1986. p. 1.
369. SPIELER, J. (US Agency for International Development) [New techniques for identifying the fertile period] Personal communication, October 24, 1986.
370. SPILLANE, W.H. and RYSER, P.E. Male fertility survey: fertility knowledge, attitudes, and practices of married men. Cambridge, Massachusetts, Ballinger Publishing, 1975. 191 p.
*371. STOKES, B. Men and family planning. Washington, D.C., Worldwatch Institute, December 1980. (Worldwatch Paper 41) 49 p.
372. STYCOS, J.M. Birth control clinics in crowded Puerto Rico. In: Human fertility in Latin America: sociological perspectives. Ithaca, New York, Cornell University Press, 1968. p. 66–82.
373. STYCOS, J.M. The Caribbean fertility studies. In: Human fertility in Latin America: sociological perspectives. Ithaca, New York, Cornell University Press, 1968. p. 133–146.
374. SUPANNATAS, S. Birth control among postpartum Thai women. In: Smithsonian Institution. Interdisciplinary Communication Program. Cultural factors and population in developing countries. Washington, D.C., Smithsonian Institution, December 1, 1976. (Occasional Monograph Series No. 6) p. 1–13.
*375. SURVEY RESEARCH INDONESIA (SRI). A qualitative study of DualIma promotion material for T.V./cinema and direct mail (stage 9). Jakarta, SRI, May 1986. 25 p.
376. SURVEY RESEARCH INDONESIA (SRI). A qualitative study on DualIma promotion materials (stage 8). Jakarta, SRI, May 1986. 34 p. (Mimeo)
377. SURVEY RESEARCH INDONESIA (SRI). Condom marketing summary report of available data. Jakarta, SRI, September 1985. 41 p.
*378. SURVEY RESEARCH INDONESIA (SRI). Findings of a qualitative survey on attitudes towards, and knowledge of family planning: Jakarta 1985. Jakarta, SRI, April 26, 1985. 90 p.
379. SURVEY RESEARCH INDONESIA (SRI). Social marketing of contraceptives. Jakarta, SRI, August 6, 1985. 15 p.
*380. SWANSON, J.M. and FORREST, K. Men's reproductive health services in family planning settings. 1986. 29 p. (Unpublished)
381. TATUM, H.J. and CONNELL-TATUM, E.B. Barrier contraception: a comprehensive overview. Fertility and Sterility 36(1): 1–12. July 1981.
382. TETTEKPOE, D.A. Obstacles socio-culturels aux soins de santé en matière de reproduction. [Socio-cultural obstacles to reproductive health care.][FRE] Presented at the Conference on Reproductive Health Management in Sub-Saharan Africa, Freetown, Sierra Leone, November 5–9, 1984. 9 p.
383. TOUFEXIS, A. Ads that shatter an old taboo: fear over AIDS puts condom commercials on TV. Time 129(7): 63. February 2, 1987.
384. TRAUB, F.A. A study of the role of the Yoruba husband in family planning: implications for family planning education. Masters thesis, [University of Ibadan], Ibadan, Nigeria, June 1978. 117 p.
385. TRIAS, M. (Pro-Bienestar de la Familia Colombiana (PROFAMILIA)). [PROFAMILIA men's clinics] Personal communication, September 29, 1986.
386. TRIAS, M. and GOMEZ, F. Vasectomy: what more can be done to make it available and acceptable in Latin America. Presented at 9th General Assembly of the World Federa-

tion of Health Agencies for the Advancement of Voluntary Surgical Contraception, Singapore, October 25, 1986. 12 p.
387. UKAEGBU, A.O. Family planning attitudes and practices in rural eastern Nigeria. Studies in Family Planning 8(7): 177–183. July 1977.
*388. UNITED KINGDOM. OFFICE OF POPULATION CENSUSES AND SURVEYS. Contraception, sterilisation and infertility. In: General Household Survey 1983. London, Her Majesty's Stationery Office, 1985. (Series GHS No. 13) p. 45–59.
389. UNITED NATIONS (UN). DEPARTMENT OF INTERNATIONAL ECONOMIC AND SOCIAL AFFAIRS. World population prospects: estimates and projections as assessed in 1982. New York, UN, 1985. (ST/ESA/SER.A/86) 521 p.
390. UNITED STATES. AGENCY FOR INTERNATIONAL DEVELOPMENT (US AID). BUREAU OF SCIENCE AND TECHNOLOGY. OFFICE OF POPULATION. Third annual resource allocation plan. Washington, D.C., US AID, January 1987. 43 p.
*391. VAN DER MERWE, R.B. and VAN WYK, J.J. Fertility and family planning in Daveyton: survey among men. Pretoria, South Africa, Human Sciences Research Council, Institute for Sociological and Demographic Research, 1982. (Research Finding S.–N.–218) 28 p.
392. VARAKAMIN, S. and SATAYAPAN, S. The Expanded Sterilization Project, National Family Planning Program, Ministry of Public Health. In: Sangsingkeo, V., Muangman, D., Sriburatham, A., and Thunyapon, S., eds. Voluntary sterilization in Thailand. Bangkok, Thai Association for Voluntary Sterilization [1982]. p. 15–29.
393. VARGAS, H. (Pro–Bienestar de la Familia Colombiana (PROFAMILIA)) [Social marketing condom sales] Personal communication, October 2, 1986.
394. VAUGHAN, B., TRUSSELL, J., MENKEN, J., and JONES, E.F. Contraceptive failure among married women in the United States, 1970–1973. Family Planning Perspectives 9(6): 251–258. November–December 1977.
395. VESSEY, M., LAWLESS, M., and YEATES, D. Efficacy of different contraceptive methods. Lancet 1(8276): 841–842. April 10, 1982.
396. VICKERY, B.H., GRIGG, M.B., GOODPASTURE, E.C., BERGSTROM, K.K., and WALKER, K.A.M. Toward a same–day, orally administered male contraceptive. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PAFR Series on Fertility Regulation) p. 271–297.
397. VILLANUEVA MONTOYA, V. and ALFARO JULCA, W. Comportamiento de la población masculina con respecto a la planificación de la familia en Trujillo, Peru. [Behavior of the male population with respect to fa[illegible]/planning in Trujillo, Peru.] [SPA] Boletin de la Oficina Sanitaria Panamericana 85(4): 290–299. October 1978.
398. VLASSOFF, M. Labour demand and economic utility of children: a case study in rural India. Population Studies 33(3): 415–428. November 1979.
399. WADE, M.E., MCCARTHY, P., ABERNATHY, J.R., SUCHINDRAN, C.M., HARRIS, G.S., DANZER, H.C., URICCHIO, W.A., and BRAUNSTEIN, G.D. A randomized prospective study of the use–effectiveness of two methods of Natural Family Planning. Presented at the International Federation for Family Life Promotion Second International Congress, Navan, Ireland, September 24–October 1, 1980. 21 p.
400. WAGATSUMA, T. Japan's long wait for modern contraception. People 13(4): 17–19. 1986.
*401. WAITES, G.M.H. Male fertility regulation: recent advances. Bulletin of the World Health Organization 64(2): 151–158. 1986.
402. WALSH, S.W. Condom sales take a turn: AIDS threat and health issues give boost to once static market. Washington Post, February 15, 1987. p. H1, H6.
403. WEINBAUER, G.F., SURMANN, F.J., AKHTAR, F.B., SHAH, G.V., VICKERY, B.H., and NIESCHLAG, E. Reversible inhibition of testicular function by a gonadotropin hormone–releasing hormone antagonist in monkeys (*Macaca fascicularis*). Fertility and Sterility 42(6): 906–914. December 1984.
404. WEISS, E., AYENI, O., LADIPO, O.A., and BAMGBOYE, F. The acceptance of modern family planning in rural Nigeria: the Oyo State Community–based Health/Family Planning Program in southwestern Nigeria. Presented at the Annual Meeting of the American Public Health Association, November 18–21, 1985, Washington, D.C. 20 p.
405. WELLINGS, K. Defining the problem. In: Bernard, M., ed. Men, sex and contraception. London, Birth Control Trust, 1984. p. 5–15.
406. WELLINGS, K. Men too—a retrospective view of the family planning association's male responsibility campaign. Planned Parenthood in Europe Regional Information Bulletin 15(1): 3–14. Spring 1986.
*407. WELLINGS, K. Men too: a retrospective view of the FPA's male responsibility campaign. March 1986. 36 p. (Unpublished)
408. WESTOFF, C.F., GOLDMAN, N., KHOO, S.–E., and CHOE, M.K. The recent demographic history of sterilization in Korea. International Family Planning Perspectives 6(4): 136–145. December 1980.
409. WESTOFF, C.F., POTTER, R.G., Jr., SAGI, P.C., and MISHLER, E.G. Family growth in metropolitan America. Princeton, New Jersey, Princeton University Press, 1961. 433 p.
410. WESTOFF, L.A. and WESTOFF, C.F. From now to zero: fertility, contraception and abortion in America. Boston, Little, Brown, 1971. 358 p.
411. WHELPTON, P., CAMPBELL, A., and PATTERSON, J. Fertility and family planning in the United States. Princeton, New Jersey, Princeton University Press, 1966. 443 p.
412. WHITE, A.C. England and Wales: services evolving from demand. In: Huber, S.C., ed. Social marketing of vasectomy services: an international review. Queretaro, Mexico, Social Marketing International Association, [1986]. p. 27–36.
413. WILLIAMSON, N.E. Boys or girls? Parents' preferences and sex control. Population Bulletin 33(1): 1–35. January 1978.
414. WINTERS, P. Condom ads aim at AIDS: LifeStyles tries new tack against nets. Advertising Age, December 1, 1986. p. 99.
*415. WOODS, E.T., NICHOLS, D., SHERMAN, J.W.D., GATES, D.S., and HOWARD, J. Reproductive health knowledge, sexual behavior and contraceptive practice among the adolescent population in Monrovia, Liberia. Research Triangle Park, North Carolina, Family Health International, August 1985. 60 p.
416. WORLD HEALTH ORGANIZATION (WHO). SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. Fourteenth annual report 1985. Geneva, WHO, December 1985. 218 p.
417. WORLD HEALTH ORGANIZATION (WHO). SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. Ninth annual report. Geneva, WHO, December 1980.
418. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON METHODS FOR THE DETERMINATION OF THE FERTILE PERIOD. A prospective multicentre study of the ovulation method of natural family planning: 4. The outcome of pregnancy. Fertility and Sterility 41(4): 593–598. April 1984.
419. WORTMAN, J. The diaphragm and other intravaginal barriers—a review. Population Reports, Series H, No. 4. Washington, D.C., Population Information Program, January 1976. 20 p.
420. WRIGLEY, E.A. Population and history. New York, McGraw–Hill, 1969. 256 p.
421. YEBOAH–AFARI, A. Ghana daddies club together. People 13(1): 21–22. 1986.
422. ZANEVELD, L.J.D. (Rush Presbyterian St. Luke's Medical Center) [Clinical trials with the device] Personal communication, September 18, 1986.
423. ZANEVELD, L.J.D., BURNS, J.W., BEYLER, S.A., DEPEL, W.A., and SHAPIRO, S.W. Development of a new reversible vas deferens occlusion device. In: Zatuchni, G.I., Goldsmith, A., Spieler, J.M., and Sciarra, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PAFR Series on Fertility Regulation) p. 201–208.
424. ZANEVELD, L.J.D., BURNS, J.W., BEYLER, S.A., DEPEL, W.A., SHAPIRO, S.W., and WALLER, D.P. A reversible vas deferens occlusive device: development and evaluation. [Abstract] Advances in Contraception 2(3): 274–275. September 1986.
*425. ZATUCHNI, G.I., GOLDSMITH, A., SPIELER, J.M., and SCIARRA, J.J., eds. Male contraception: advances and future prospects. Philadelphia, Harper & Row, 1986. (PAFR Series on Fertility Regulation) 474 p.
426. ZELNIK, M. and SHAH, F.K. First intercourse among young Americans. Family Planning Perspectives 15(1): 64–70. January–February 1983.

ADDENDA

427. ANONYMOUS. Condom ads slated for TV. Baltimore Sun, February 20, 1987. p. 4D.
428. ALEXANDER, N.J. and CLARKSON, T.B. Vasectomy increases the severity of diet-induced atherosclerosis in *Macaca fascicularis*. Science 201(4355): 538–541. August 1978.
429. ASSOCIATION FOR VOLUNTARY SURGICAL CONTRACEPTION (AVSC). Asia Regional Office, Dhaka, Bangladesh. BAVS vasectomy clinic and national vasectomy program service statistics 1980–1986. [Table] Dhaka, Bangladesh, AVSC, 1987. 1 p.
*430. BURKINA FASO. DIRECTION DE LA SANTE DE LA MERE ET DE L'ENFANT, and COLUMBIA UNIVERSITY, CENTER FOR POPULATION AND FAMILY HEALTH. Du projet de recherche operationnelle: consolidation des services de prestation sanitaire en direction de la famille au Burkina Faso. [Consolidation of Health Delivery Services for the Family in Burkina Faso.] [FRE] New York, Columbia University, December 1986. 96 p.
431. CLARKSON, T.B. and ALEXANDER, N.J. Long-term vasectomy: effects on the occurrence and extent of atherosclerosis in rhesus monkeys. Journal of Clinical Investigation 65(1): 15–25. January 1980.
432. COLEMAN, S. (North Carolina State University) [Combined use of condoms and periodic abstinence in Japan] Personal communication, February 28, 1987.
433. COOK, R.J. and MAINE, D. Spousal veto over family planning services. In press, American Journal of Public Health 77(4). April 1987.
434. COUNCIL ON POPULATION PROBLEMS (CPP). Awakening the housewives—the New Life Movement at Kawasaki Ironworks (Part I). JOICEP Review, No. 3, 1982. p. 3–11.
*435. DAVIDSON, A.R., AHN, K.C., CHANDRA, S., DIAZ-GUERRERO, R., DUBEY, D.C., and MEHRYAR, A. The acceptability of new contraceptive methods for men. Presented at the 113th Annual Meeting of the American Public Health Association, Washington, D.C., 1985. 34 p.
436. FAMILY PLANNING ASSOCIATION OF HONG KONG (FPAHK). Annual report 83/84. Hong Kong, FPAHK, [1984]. 108 p.
437. GOLDBERG, H. (US Centers for Disease Control). [Planned contraceptive prevalence survey in Haiti] Personal communication, January 30, 1987.
438. HATCHER, R.A. and FLOYD, L. It makes good condom sense. [Press release] Atlanta, Georgia, Grady Memorial Hospital Family Planning Program, February 16, 1987. 2 p.
439. INTERNATIONAL PLANNED PARENTHOOD FEDERATION. Irish FPA opens telephone service for adolescents. [Press release, Irish Family Planning Association, January 22, 1985] IPPF Open File, February 1, 1985.
440. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Youth projects: 1982. London, IPPF, October 1983. 52 p. (Mimeo)
441. JANOWITZ, B. (Family Health International) [Ongoing surveys of young people in The Gambia and Zimbabwe] Personal communication, January 27, 1987.
442. LISKIN, L., RINEHART, W., BLACKBURN, R., and RUTLEDGE, A. Minilaparotomy and laparoscopy: safe, effective, and widely used. Population Reports, Series C, No. 9. Baltimore, Johns Hopkins University, Population Information Program, May 1985. 44 p.
443. LOUIS, T. and CISZEWSKI, R. Social marketing—Sri Lanka and Bangladesh. In: Potts, M. and Bhiwandiwala, P., eds. Birth control: an international assessment. Baltimore, University Park Press, 1979. p. 135–151.
444. MORRIS, L. (US Centers for Disease Control). [Survey of husbands in Jordan and surveys of young people in Guatemala and Jamaica] Personal communication, January 13, 1987.
445. NICHOLS, D. (Family Health International) [Survey of men in Bendel State, Nigeria] Personal communication, January 27, 1987.
446. POPULATION AND COMMUNITY DEVELOPMENT ASSOCIATION (PDA). Thai Youth to Youth Project (1980–1985). Bangkok, PDA, 1985. 6 p. (Mimeo)
447. POPULATION CENTER FOUNDATION (PCF). Completed and ongoing adolescent fertility programs and projects. Metro Manila, Philippines, PCF, 1985.
448. RIMON, J.G. (Johns Hopkins University/Population Communication Services) [Marriage license regulation in the Philippines] Personal communication, February 24, 1987.
449. SAR, A. (World Scout Bureau) [Family life education activities among national scout groups] Personal communication, January 15, 1987.
450. STANTON, C. (Westinghouse Institute for Resource Development). [Demographic and Health Survey in Mali] Personal communication, January 14, 1987.
451. SULLIVAN, J. (Westinghouse Institute for Resource Development) [Planned Demographic and Health Survey in Burundi] Personal communication, January 13, 1987.
452. TATA, N.H. Family planning in industry in India. In: International Labour Office (ILO). Regional Office for Asia. Family planning in industry in the Asian region, part II. Some action studies. Bangkok, ILO, Regional Office for Asia, October 1974. p. 1–14.
453. VAN DE WALLE, E. and TRAORE, B. Attitudes of women and men toward contraception in a town in Burkina Faso. Fertility Determinants Research Notes, No. 14, December 1986. 14 p.
454. WORSTELL, M. (The Futures Group) [Condom distribution and manufacture in Latin America] Personal communication, February 11, 1987.

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INTRAUTERINE DEVICES

Population Information Program, The Johns Hopkins University, Hampton House, 624 North Broadway, Baltimore, Maryland 21205, USA

IUDs—A New Look

Editors' Summary. Using an intrauterine device (IUD) is many times safer than pregnancy and more effective in preventing pregnancy than oral contraceptives, condoms, spermicides, any barrier method, or Natural Family Planning. The current generation of IUDs is safe for most women and about 99 percent effective over one year of use. But not all women should use IUDs. The provider must screen potential users, insert the IUD correctly, and follow up users.

The TCu-380A

One of the latest generation of IUDs, a copper-bearing, T-shaped device called the TCu-380A, may soon be the major IUD available in most countries. The TCu-380A is becoming the primary IUD provided by the United States Agency for International Development, one of the major international donors of contraceptives. Also, the TCu-380A may be marketed in the US starting in 1988. This IUD will fill the gap in the US created when major manufacturers stopped marketing their IUDs for financial reasons. Both in developing countries and in the US, the TCu-380A will be available at special low prices to governments and nonprofit family planning programs.

The TCu-380A is one of the most effective methods of contraception ever developed. In large multicenter trials pregnancy rates are less than one per 100 women in the first year of use and, in the largest major international study, only 1.4 after *six* years. The TCu-380A and other newer IUDs—the TCu-220C, the Multiload-375, and the Nova T—are more effective in practice than oral contraceptives.

Safety Issues Clarified

Recent research is helping to lift a cloud that has hung over the IUD for the past several years. Research has shown that IUD use increases the risk of pelvic inflammatory disease (infection in the upper genital tract) and subsequent infertility. Newer studies and new analyses of earlier studies show that the risk of infection is largely limited to the first four months after IUD insertion and to women exposed to sexually transmitted diseases. There appears to be virtually no increased risk of infertility in a woman using a copper IUD who has a mutually faithful sexual relationship with one partner and thus is not exposed to sexually transmitted diseases.

Similarly, evidence shows that copper and all-plastic IUDs do not increase the risk of ectopic pregnancies (that is, pregnancies outside the uterus). In fact, these IUDs provide some protection against them. This finding helps to settle a long-standing debate.

The Provider's Role

Successful IUD use depends on more than a well-designed and tested IUD. The judgment and skill of the provider are important to ensure:

(1) Careful screening of women interested in using IUDs. Women who have or might get sexually transmitted diseases should not use IUDs.

(2) Careful insertion, carried out under sterile conditions with disinfected instruments, that places the IUD high in the uterus. This will minimize pain during insertion, the risks of perforation and infection, and the chances of pregnancy and expulsion. An IUD can be inserted at any time during the menstrual cycle.

(3) Informative and empathetic counseling. An IUD user needs to know and remember what signs call for medical attention, when a copper or hormone-releasing IUD should be replaced, and that the IUD does not protect against AIDS and other sexually transmitted diseases.

(4) Regular follow-up plus quick access to medical care. Help should be available quickly any time an IUD user notices any signs of complications or has any concerns.

Not only doctors but also nurses, midwives, and other health care providers can safely insert IUDs. Whatever their backgrounds, all need special training in pelvic examination and insertion technique and also in screening, counseling, and follow-up. **End of Editors' Summary.**

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BACKGROUND

Intrauterine devices (IUDs) have been used throughout the world for almost three decades. Millions of women have found them very effective, safe, and convenient. During the 1960s and 1970s researchers developed the "second-generation" copper IUDs, which are highly effective, long-lasting, and have even fewer side effects. Now that these improved IUDs are becoming widely available, attention is shifting toward identifying appropriate IUD users and providing high-quality medical care and counseling to maximize safety and acceptability.

The first modern IUDs—the Lippes Loop and the Margulies Spiral—appeared in the early 1960s. They were made of polyethylene, a biologically inert plastic (137, 216). In the late 1960s researchers discovered that adding copper to a plastic IUD frame increased effectiveness. The first copper IUDs—the Cu-7 and TCu-200—were smaller than the all-plastic devices.

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Thus they caused fewer side effects. But they were just as effective in preventing pregnancy (370, 454). It was thought, however, that these IUDs would have to be replaced every few years. Therefore a second generation of copper IUDs was developed, including the TCu-380A, the TCu-220, the Nova T, the Multiload-375 (MLCu-375), and others (see pp. 16–17). These IUDs are longer lasting and even more effective. IUDs that release a hormone in the uterus also were developed in the 1970s (5).

International donor agencies are now providing second-generation copper IUDs for use in developing-country programs. The United States Agency for International Development (US AID), one of the major international donors of IUDs, began supplying the TCu-380A in 1985 and is now supplying this device to nearly all programs because it is effective and long-lasting (401, 402). The cumulative pregnancy rate after six years of use is just 1.4 per 100 women, according to a World Health Organization (WHO) international study (307). The International Planned Parenthood Federation and some other donor agencies provide the Nova T and Multiloads as well as the TCu-380A. Except in a few countries, notably China, where stainless steel rings are the most widely used IUDs and the TCu-220 is the only second-generation copper IUD in use, the TCu-380A is likely to become the predominant IUD in most developing-country programs.

US Situation

In the US the TCu-380A will soon be available. Although the US Food and Drug Administration approved its sale in 1984, no pharmaceutical company has marketed it in the US. In late 1987 GynoPharma, Inc., a new US company specializing in gynecologic and contraceptive products, received a license from the Population Council, developers of the TCu-380A, to sell this IUD in the US. GynoPharma is expected to begin marketing in 1988.

The introduction of the TCu-380A in the US will fill a gap created in the mid-1980s when US manufacturers stopped selling the Saf-T-Coil (139), the Lippes Loop (246), and, in 1986, the TCu-200 and the Cu-7 (316). Since the removal of these devices from the market, the hormone-releasing Progestasert has been the only IUD available in the US. This has caused hardships for US women as well as concern in other countries (111).

The reasons for the near absence of IUDs on the US market are unique and complex. They do not involve the safety or efficacy of the IUDs recently taken off the market but instead involve business decisions. In the US, unlike many other countries, family planning services are provided largely through the private sector. For the most part, private pharmaceutical companies sell IUDs for a profit. Because only a small percentage of American women use IUDs—some 7 percent of women in 1982–83 (242)—and because IUDs are long-lasting, profits from any IUD are modest. As more doctors switched to copper IUDs, sales of all-plastic devices declined, leading manufacturers of the Saf-T-Coil and the Lippes Loop to halt production (139, 246).

The Searle Company took the copper Cu-7 and TCu-200 off the market in 1986 for a somewhat different reason. Over 800 lawsuits had been filed against the company, charging that the IUDs had injured their users. As a result, continuing liability insurance became unavailable (316). Although the company

had won most of the cases that went to trial, the costs of defending against the lawsuits were so high that Searle decided for financial reasons to stop marketing IUDs. As of March 1988 the company had won 14 of the 17 cases brought to court (457).

Why have there been so many lawsuits in the US over IUDs? This litigation is part of a larger US crisis in liability and liability insurance that is affecting many products and services in the health field as well as in other areas (3, 111, 292). In the last decade the number of lawsuits claiming that a product has caused harm (product liability lawsuits) and the number of malpractice suits against physicians has increased sharply (124, 403). For this and other economic reasons, it has become more difficult and expensive for pharmaceutical companies and other institutions to obtain insurance (76, 111, 299, 338, 403). (GynoPharma, the company that will market the TCu-380A in the US, has obtained insurance, however.)

IUD manufacturers are particularly subject to lawsuits because of the Dalkon Shield. The Dalkon Shield IUD was sold in the early 1970s but is no longer on the market. It was linked to spontaneous septic abortions and pelvic inflammatory disease (46). The extent of health risks with the Dalkon Shield was apparently due to its particular design (372). Although other IUDs have been associated with much lower health risks (see p. 12), some have been subject to many lawsuits along with the Dalkon Shield.

Public Health Organizations Reaffirm Support for IUDs

When the US pharmaceutical companies stopped selling IUDs, national and international health and family planning organizations protested. All reaffirmed their support for IUDs and recommended that they be made widely available (2, 6, 8, 159, 161, 274). A WHO Scientific Group, convened in 1986 to review the safety of IUDs, concluded, "The use of IUDs in both developed and developing countries should continue to be supported as a reliable and safe method of reversible fertility regulation" (437). All donor agencies continue to provide IUDs on request from governments and private voluntary family planning agencies (see p. 20).

Despite these endorsements, the US situation may have been misunderstood. For example, in an informal 1986 survey, 9 of 29 African family planning directors said that they thought most IUDs were no longer sold in the US because they were declared unsafe (97). The directors did not realize that the manufacturers' decisions were primarily financial. Introduction of the TCu-380A in the US should help to correct these misunderstandings.

IUD PERFORMANCE

IUDs can be classified as either:

- unmedicated, or inert, or
- medicated—that is, copper or hormone-releasing.

Of the eight types of IUDs now widely used, two are unmedicated and six are copper.

The **Lippes Loop**, made of polyethylene, is the most widely used unmedicated IUD outside China. The other major types of unmedicated IUDs are the flexible **stainless steel rings** (either round or in the shape of the uterine cavity and made with a single or double coil). These rings are widely used in China but are not used elsewhere.

Medicated IUDs have either copper or hormones added to a plastic frame. The first generation of copper IUDs carried copper wire with a surface area of 200 to 250 mm^2. Two of these—the **TCu-200** and the **Multiload-250** (**MLCu-250**)—are still widely available. The second generation of copper IUDs introduced several innovations—more copper wire, copper sleeves, and/or a silver core to the copper wire (denoted by Ag in the IUD name). These changes increase effectiveness and extend effective lifespan (see box, p. 6). The major second-generation IUDs are the **TCu-380A**, **TCu-220C**, **Nova T**, and **Multiload-375** (**MLCu-375**).

Hormone-releasing IUDs constantly release small amounts of steroid hormone into the uterus. The only hormone-releasing device currently marketed is the **Progestasert**, containing 38 mg progesterone released at a rate of 65 µg per day for one year. A longer-lasting levonorgestrel-releasing IUD, the **LNG-20**, developed and widely tested by the Population Council, is not yet available (see box, p. 22).

For the right women, the current generation of IUDs offer a highly effective, convenient, and safe way to avoid unwanted pregnancy. Here, in Bangladesh a family planning worker and her client talk about the TCu-380A IUD.
(Photo by S.J. Staniski)

Comparing IUDs

None of these IUDs is consistently superior to others in terms of effectiveness, side effects, expulsion, and continuation. In general, however, second-generation copper IUDs are much more effective and have fewer side effects than unmedicated IUDs.

Pregnancy and complication rates, even with the same IUD, vary in

Table 1. Performance of Copper IUDs, Selected Randomized Multicenter Comparative Trials, 1975–1987

Author & Date (Ref. No.)	Place	Life-Table Method[a]	IUDs Studied	No. of Women	Rate per 100 Women of Removal for: Accidental Pregnancy	Expulsion	Bleeding /Pain	Infection	Other Medical	Continuation Rate
12-Month Rates										
Cole et al. 1985 (73)	Costa Rica, Egypt, Panama, Yugoslavia	Noncompeting	TCu-380Ag	737	0.3	3.3	3.6	—0.4—		90.9
			MLCu-375	740	0.8	4.1	3.6	—1.1—		88.7
Kozuh et al. 1986 (200)	Yugoslavia	Noncompeting	Nova T	410	1.0	2.0	6.0	0.2	0.2	89.4
			TCu-200Ag	409	3.0	0.7	3.8	0.3	0.3	90.5
Luukkainen et al. 1983 (226)	Denmark, Finland, Sweden	Noncompeting	Nova T	918	0.8	5.8	11.9	2.5	0.9	76.1
			TCu-200Ag	947	2.1	4.6	12.2	2.0	1.5	76.7
Sivin & Stern 1979 (332)	Canada, US	Competing	TCu-200	1,014	2.1	7.1	10.3	—3.6—		72.5
			TCu-220C	1,097	0.9	8.0	11.5	—2.3—		73.5
			TCu-200	1,851	3.1	7.1	11.5	—2.8—		70.8
			TCu-380A	1,679	1.0*	7.1	14.2	—3.0—		69.7
Sivin et al. 1987[b] (335)	Brazil, Chile, Dominican Republic, Egypt, Singapore, US	Competing	TCu-380Ag	1,120	0.3	5.5	7.0[c]	0.9	2.8	79.8
			LNG-20	1,124	0.2	6.0	10.9[c]	1.0	3.4	73.5*
Sung et al. 1984 (363)	People's Republic of China	Competing	TCu-380Ag	892[d]	0.1	4.3[g]	6.8	—0.3—		88.4
			TCu-220C	887[e]	0.3	1.6*	3.3[h]*	—0.0—		94.5*
			Mahua Ring	983[f]	3.0*	6.3	4.3	—0.3—		86.1
Thiery et al. 1980 (381)	Belgium	Noncompeting	TCu-200	730	1.0	2.7	1.4	0.2	NA	93.1
			MLCu-375	664	0.5	1.2	2.3	0.1	NA	94.4
Wilson 1986 (432)	New Zealand	Competing	Nova T	509[i]	1.7	3.6	9.8	2.1	2.2	77.2*[j]
			MLCu-375	475[i]	1.5	2.2	6.2[k]	1.2	0.7	80.4
			MLCu-250Ag	457[i]	0.3*	1.6	7.2	0.5	1.2	82.7
WHO 1982 (444)	Egypt, Hungary, India, Philippines, Thailand, UK, US, USSR, West Germany	Noncompeting	TCu-220C	984	0.5*	3.7*	2.2*[l]	0.5	1.2	76.3
			Lippes Loop D	992	1.9	7.8	4.5[l]	0.1	0.5	68.8*[m]
			Cu-7	994	1.9	6.3	3.6[l]	0.1	1.3	70.6
24-Month Rates										
Goh et al. 1985 (121)	Indonesia, Malaysia, Singapore	Competing	MLCu-250	580	2.5	2.1	6.1	—4.3—		74.0
			TCu-220C	569	1.7	3.8	6.0	—3.5—		73.0
			Cu-7	576	4.9	8.5*	5.1	—2.9—		69.0
Kozuh et al. 1986 (200)	Yugoslavia	Noncompeting	Nova T	410	1.7*	3.0	9.2	0.6	0.5	81.2
			TCu-200	409	5.5	1.4	6.3	0.5	0.6	80.2
Luukkainen et al. 1983 (226)	Denmark, Finland, Sweden	Noncompeting	Nova T	918	1.8*	7.8	19.1	3.3	2.1	51.6
			TCu-200Ag	947	4.8	6.0	16.4	2.7	3.2	64.7
Saure et al. 1985 (314)	Finland	Competing	Fincoid-350	449	1.3	9.2	13.2	2.3	2.7	65.1
			MLCu-375	432	0.9	10.2[n]	12.3	2.2	0.6	65.6
			Nova T	452	2.3	4.7	10.8	1.7	1.5	72.5
Sivin & Stern 1979 (332)	Canada, US	Competing	TCu-200	1,014	5.0	9.0	16.1	—5.0—		55.9
			TCu-220C	1,097	1.8*	9.8	17.1	—4.0—		59.7
			TCu-200	1,851	5.6	8.3	18.9*	—4.3—		50.0
			TCu-380A	1,679	1.0*	9.5	23.7	—4.7—		50.1
Sivin et al. 1987[b] (335)	Brazil, Chile, Dominican Republic, Egypt, Singapore, US	Competing	TCu-380Ag	1,120	0.7	6.1	11.5[c]	1.5	4.6	67.5
			LNG-20	1,124	0.2	7.3	17.0[c]	1.3	5.6	59.4*
Sung et al. 1985 (364)	People's Republic of China	Competing	TCu-380Ag	892[d]	0.6	5.3	8.9	—0.7—		83.9
			TCu-220C	887[e]	1.8	2.1*	7.1	—0.0—		88.4*
			Mahua Ring	983[f]	6.0*	6.9	7.8	—0.8—		78.3
Thiery et al. 1980 (381)	Belgium	Competing	TCu-200	730	1.2	3.1	1.9	0.2	NA	90.0
			MLCu-250	664	1.1	1.2	3.8	0.1	NA	89.5
WHO 1982 (444)	Egypt, Hungary, India, Philippines, Thailand, UK, US, USSR, West Germany	Noncompeting	TCu-220C	984	1.7*	6.1*[p]	3.9*[l]	0.5	2.9	60.3*
			Lippes Loop D	992	3.7	10.0	7.9[l]	0.3	1.4	54.8
			Cu-7	994	3.6	7.9	6.5[l]	0.1	3.7	55.5

Table 1 Continued

Author & Date (Ref. No.)	Place	Life-Table Method[a]	IUDs Studied	No. of Women	Rate per 100 Women of Removal for: Accidental Pregnancy	Expulsion	Bleeding /Pain	Infection	Other Medical	Continuation Rate
36-Month Rates										
Luukkainen et al. 1983 (226)	Denmark, Finland, Sweden	Noncompeting	Nova T	918	2.7*	9.8	25.0	4.6	2.8	48.2
			TCu-200Ag	947	6.5	6.8*	23.2	4.9	4.4	51.1
WHO 1988 (307)	13 centers worldwide	Noncompeting	TCu-380A	1,396	1.0*	6.9	12.5	0.1	1.7	63.7
			TCu-220C	1,396	3.3	7.7	11.6	0.3	0.9	62.5
	19 centers worldwide	Noncompeting	TCu-220C	1,881	4.4*	6.6	11.4	0.2	1.4	62.5
			Nova T	1,847	6.4	6.0	10.5	0.3	1.6	60.2
48-Month Rates										
Luukkainen et al. 1983 (226)	Denmark, Finland, Sweden	Noncompeting	Nova T	918	2.9*	11.0	30.0	5.9	3.4*	39.8
			TCu-200Ag	947	7.1	9.0	27.2	6.0	7.9	40.5
WHO 1988 (307)	13 centers worldwide	Noncompeting	TCu-380A	1,396	1.1*	7.7	14.4	0.1	2.3	56.6
			TCu-220C	1,396	3.9	8.4	14.1	0.4	1.4	54.3
	19 centers worldwide	Noncompeting	Nova T	1,847	8.4	6.2	11.6	0.4	1.7	54.2
			TCu-220C	1,881	5.1*	7.0	13.1	0.2	2.1	57.5
60-Month Rates										
Luukkainen et al.1983 (226)	Denmark, Finland, Sweden	Noncompeting	Nova T	918	3.4*	12.5	34.7	7.2	5.1*	33.2
			TCu-200Ag	947	8.7	9.9	29.8	6.5	8.3	36.0
WHO 1988 (307)	13 centers worldwide	Noncompeting	TCu-380A	1,396	1.4*	8.0	17.3	0.1	2.4	50.5
			TCu-220C	1,396	3.9	9.1	16.4	0.6	1.5	49.0
	19 centers worldwide	Noncompeting	Nova T	1,847	10.0	6.2	13.4	0.4	2.0	50.6
			TCu-220C	1,881	5.4*	7.6	14.5	0.2	2.8	54.5
72-Month Rates										
WHO 1988 (307)	13 centers worldwide	Noncompeting	TCu-380A	1,396	1.4*	8.0	19.2	0.1	2.4	47.3
			TCu-220C	1,396	4.5	9.9	17.1	0.6	1.7	45.1

*Reported as statistically significant difference. (In studies comparing three IUDs, the asterisked rate is significantly different from both other rates except where noted.)

[a]Life-table techniques are used to calculate rates of removal and continuation taking into account the varying lengths of time that women remain in a study. Noncompeting life-table rates, also known as gross cumulative rates or, by the World Health Organization, as cumulative net probability rates, are the discontinuation rates for a single event among current users. That is, when the rate is calculated, discontinuations for other reasons are taken into account. Competing rates, also called net cumulative rates or cumulative crude rates, are cumulative discontinuation rates for an event among all users without adjusting for other events. Noncompeting rates are most appropriate for comparing event rates among different devices. Competing rates provide an estimate of overall IUD performance, showing the relative importance of different reasons for discontinuation. Competing rates may be unreliable when comparing specific reasons for discontinuation between devices.

[b]13-month rates

[c]Includes removal for amenorrhea: at 13 months, 0.1 for the TCu-380Ag and 4.9 for the LNG-20; at 25 months, 0.2 for the TCu-380Ag and 8.4 for the LNG-20

[d]27 percent postabortion insertions

[e]36 percent postabortion insertions

[f]25 percent postabortion insertions

[g]More than half of TCu-380Ag expulsions occurred at one of the five centers.

[h]TCu-220C and TCu-380Ag significantly different

[i]Number of women finishing 12 months

[j]MLCu-250Ag and Nova T significantly different

[k]MLCu-375 and Nova T significantly different

[l]Removals for bleeding only

[m]Lippes Loop and TCu-220C significantly different

[n]Partial expulsion rates for MLCu-375 and Nova T are significantly different. Complete expulsion rates are not.

[o]25-month rates

[p]TCu-220C and Lippes Loop significantly different

different clinics and studies. This is partly because the women may be dissimilar—in age, parity, and other factors that influence IUD performance. Also, the quality of care may vary. Thus randomized multicenter studies usually are the most reliable way to evaluate and compare IUD performance. Results of such studies are presented in Table 1.

While efforts to design better IUDs continue (see box, p. 22), the quality of care that IUD users receive may make more difference to IUD performance than the design of a specific IUD. The health care provider's training and experience, particularly with insertion technique, are especially important.

It is customary to evaluate IUDs in terms of contraceptive effectiveness, continuation, and rates of removal due to side effects and complications—bleeding and pain, perforation, expulsion, and infection. All are measured in life-table rates—the number of pregnancies or removals per 100 or 1,000 women after a specified length of IUD use.

Effectiveness

The IUD is one of the most effective methods of contraception. With most devices, pregnancy rates range from one to three per 100 women per year. Four of the newer copper IUDs—the TCu-380A, TCu-380Ag, TCu-220C, and MLCu-375—are slightly more effective than others. Pregnancy rates for these devices are less than one per 100 women per year (331) (see Table 1). In a WHO international study, after six years of use

With the new IUDs, pregnancy rates are less than one per 100 women per year.

the cumulative pregnancy rate with the TCu-380A is 1.4 per 100 women, and with the TCu-220C, 4.5 per 100 women (307). This is the longest major international study.

Pregnancy rates for earlier devices—the TCu-200, the Cu-7, and the Lippes Loop—are about 2 per 100 women per year (331) (see Table 1). The Chinese ring is less effective, with pregnancy rates of 3 per 100 women at one year and 6 per 100 at two years (363, 364).

Like most other reversible contraceptives, the IUD does not perform as well in general use as in clinical trials (387). Still, in practice it remains one of the most effective reversible contraceptive methods. In fact, in developing countries IUDs are often more effective than oral contraceptives. According to World Fertility Survey data from five Latin American countries in the 1970s, for example, the pregnancy rate was 5 per 100 IUD users per year, 8 per 100 oral contraceptive users, and 18 per 100 condom users (122). A 1980 Philippine survey also reported markedly lower pregnancy rates among IUD users than among oral contraceptive users (204).

Continuation

Women use IUDs longer than most other reversible contraceptive methods. According to large multicenter trials in developing countries, about 70 to more than 90 per 100 women are still using their IUDs one year after insertion (see Table 1). In a WHO study, six years after insertion 47 per 100 women were still using the TCu-380A (307). IUD continuation rates in clinical trials are as high or higher than for Norplant implants (470, 472) and higher than for oral contraceptives, condoms, or diaphragms (204, 437, 473). Even outside clinical trials, IUD continuation rates are high. The 1980 study in the Philippines

Lifespan of Copper IUDs

Clinical trials show that all of the widely used copper IUDs are effective for at least five years (21, 225, 226, 307, 380, 383, 405, 451, 453). Researchers think that the second-generation copper IUDs are probably effective for much longer (279, 411). Copper IUDs are currently approved for only three to five years, however (see table at right). Regulatory approvals are generally based on effectiveness demonstrated in clinical trials but often lag behind the latest findings.

The few long-term randomized clinical trials of copper IUDs report low cumulative pregnancy rates for the second-generation copper IUDs—after six years, 1.4 per 100 women with the TCu-380A and 4.5 with the TCu-220C, and, after five years, 3.4 with the Nova T (226, 307) (see Table 1). By comparison, nonrandomized trials of the TCu-200, a first-generation copper IUD with less copper, report higher 5-year pregnancy rates—from 7 to 12 per 100 women (331, 451, 453). Large nonrandomized trials of Multiload IUDs have found low 4-year pregnancy rates—2.5 per 100 women for the MLCu-375 and 1.2 per 100 women for the MLCu-250 (380, 383).

With the TCu-380A, Nova T, TCu-220C, MLCu-250, MLCu-375, and, according to most studies, the TCu-200, annual pregnancy rates do not increase over a 4- or 5-year period. In fact, annual pregnancy rates in the fourth or fifth years of IUD use are lower than in the first year (21, 226, 254, 331, 333, 380, 405). This is largely because women using IUDs for long periods tend to be older and thus less fertile than short-term users (437). Also, women whose IUDs are improperly inserted, expelled, or perforate the uterus are most likely to become pregnant early in the study. Declining pregnancy rates over long periods are seen also in women using noncopper devices such as the Lippes Loop (385).

Researchers estimate that copper IUDs may be effective for up to three times longer than yet demonstrated in clinical trials (89, 199, 206, 411, 452)—for 10 years or perhaps even more for the TCu-380, TCu-380Ag, TCu-220C, and Nova T (249, 279). Such estimates are imprecise, however. They are based on projections about rates of copper loss from IUDs. These rates are variable and difficult to ascertain (50, 252).

Researchers continue to study women using second-generation copper IUDs for increasing lengths of time. If pregnancy rates remain low, as expected, and if other complication rates are acceptable, the approved lifespans of some copper IUDs may be extended. Less frequent replacement would reduce the risks of pelvic inflammatory disease, perforation, and other complications that mainly occur soon after insertion. Also, less frequent insertion would cost less and be more convenient.

Copper IUDs: Demonstrated Lifespans and Regulatory Approvals in Selected Countries

Type	Years of Lifespan Demonstrated in Clinical Trials (Ref. No.)		Regulatory Agency Approval	
			Country	Years Permitted
TCu-380A	6	(307)	US & UK	4
			Various European	5
TCu-380Ag	5	(330)	Finland	5
TCu-200	6	(453)	US*	4
			Various European	3
TCu-220C	10	(379)	Mexico	3
Nova T	5	(226, 307)	Various European	5
MLCu-250	8	(21)	Various European	3
MLCu-375	5	(380)	Various European	5

*For TCu-200B

estimated one-year continuation rates of 70 percent among IUD users compared with 42 percent among oral contraceptive users and 10 percent among condom users (204). Similarly, statistics from the Indonesian national family planning program showed that 65 to 75 percent of IUD users were still using their method after three years compared with 30 to 40 percent of oral contraceptive users (98).

Bleeding and Pain

Increased menstrual bleeding, often with pain, is the most common problem of IUD use and the most common medical reason for removing IUDs. In clinical trials roughly 4 to 15 percent of women stop using IUDs for this reason within a year after insertion. Percentages are usually higher for the Lippes Loops and other unmedicated devices than for copper IUDs.

Older women and women with children generally have lower rates of removal due to bleeding and pain (332, 463). The kind of counseling and support women receive and their attitudes toward using IUDs also influence rates of discontinuation due to bleeding and pain (27). Women who want no more children, for example, may be more tolerant of heavy bleeding and less likely to discontinue than younger women who plan to have more children.

Unmedicated and copper IUDs increase the volume of menstrual bleeding per cycle, probably because the IUD disturbs the blood vessels or alters the normal blood clotting mechanism in the lining of the uterus (341, 437). With unmedicated devices, blood flow increases on average by 50 to 100 percent above preinsertion levels (10, 132, 135, 167, 437); with copper IUDs, 20 to 50 percent (115, 135, 167, 207, 212, 229). With the Lippes Loop and TCu-220C, among others, these changes persist. With the TCu-200 and the Cu-7, blood loss gradually diminishes to preinsertion levels over the period from 12 to 24 months (10, 115, 437).

Unlike other IUDs, progestin-releasing devices decrease menstrual blood flow—by as much as 40 percent (131, 222, 223, 258, 465). The Progestasert, however, may increase the number of days of light bleeding and spotting, and the LNG-20 can stop menstruation (amenorrhea) (223, 258, 308, 335).

With all IUDs, abnormal bleeding and pain may be due, not to the IUD itself, but to pelvic inflammatory disease (PID), ectopic pregnancy, or other conditions. Therefore the health care provider should consider all conditions that might cause bleeding and pain.

Risk of anemia. An estimated 40 percent of nonpregnant women in developing countries are anemic (460). Many more have marginal iron levels (10). Thus increased bleeding with copper and unmedicated IUDs can be a cause for concern.

Whether IUDs increase the risk of anemia is uncertain, however. Some one- and two-year studies of copper and unmedicated IUDs show significant declines in serum ferritin, which measures early stages of iron depletion, and in hemoglobin, which measures only later stages (10, 115, 117, 134, 147, 167, 188). Others find no changes (212, 271, 284, 298, 320). The few long-term studies done have found little increase in anemia (329, 378, 437). In a study carried out in several developing countries and the US, 24 percent of women were anemic when they began using the TCu-380A. Four years later 25.4 percent were anemic (329). In the US and Finland studies report lower serum ferritin levels in long-term IUD users than in nonusers, but no cases of clinical anemia were seen (250, 378). In developing countries protection against repeated pregnancies—a major cause of iron depletion and anemia—may offset the increased menstrual bleeding with IUDs (437).

Hormone-releasing IUDs, by reducing menstrual bleeding, may actually protect against anemia. In a multicenter trial 21 percent of the women were anemic when they began using the LNG-20. After four years of use only 6 percent were anemic (329, 335).

Perforation

Perforation of the uterus occurs when the IUD, the inserter tube, the sound, or another gynecological instrument pierces the uterine muscle wall. Most perforations apparently occur during insertion and involve the uterine fundus (top of the

New Findings on How IUDs Prevent Pregnancy

Recent research is shedding new light on how IUDs prevent pregnancy. For years some people speculated that biochemical changes in the uterus caused by an IUD either destroyed the fertilized ovum or prevented implantation. New studies, however, suggest that IUDs act earlier in the reproductive process and actually prevent sperm from fertilizing ova (437).

In the first study of its kind, researchers in Chile recovered ova from 14 women using various IUDs and 20 women not using contraception. All of the women had recently had sexual intercourse around the time of ovulation. None of the ova recovered from IUD users showed clear signs of fertilization and normal embryonic development. In contrast, half of the ova recovered from nonusers did (260). These results provide the clearest evidence to date that IUDs generally work by preventing fertilization.

Studies using assays for human chorionic gonadotropin (hCG), a hormone secreted by cells surrounding the fertilized ovum, also suggest that IUDs generally prevent fertilization (317, 416, 427). These assays can detect fertilization within 7 to 10 days, well before implantation of a fertilized ovum is complete (106, 198, 437). Two studies of women using mainly copper IUDs have found hCG assays indicating fertilization in less than one percent of menstrual cycles (317, 427).

IUDs affect ova and sperm in various ways. They stimulate a pronounced inflammatory reaction, or foreign-body response, in the uterus. The concentration of various types of white blood cells, prostaglandins, and enzymes in uterine and tubal fluids increases markedly (174, 243, 264, 312, 322, 437), especially with copper IUDs (235). These changes may interfere with transport of sperm in the genital tract and may damage sperm and ova so that fertilization is impossible (260, 437). In most studies fewer sperm are found in the fallopian tubes, where fertilization is thought to take place, in IUD users than in nonusers (12, 193, 312, 386). Various types of white blood cells probably consume many sperm in the uterus (312). Other sperm may be damaged so that they cannot move into the fallopian tubes (260).

uterus). In large clinical trials perforation has been rare—no more than 1.2 per 1,000 insertions (73, 90, 200, 314, 332, 364, 437, 444). Perforations may go unnoticed at the time of insertion, however (42). Perforations may be partial, with just part of the IUD piercing the uterine wall or cervix, or complete, with the IUD passing through the uterine wall into the abdominal cavity. Also, over time IUDs may become embedded in the uterine wall without perforating it (42, 130, 340, 450).

In many cases a partial perforation of the uterine fundus heals quickly, and no treatment is required. Copper and hormone-releasing IUDs that have completely perforated the uterus should be removed as soon as possible, however. They can cause an inflammatory reaction and adhesions in the abdominal cavity (15, 437, 449). Some researchers think that unmedicated devices also should be removed (42, 183, 237, 449). The Medical Advisory Panel of the International Planned Parenthood Federation considers this necessary only if the woman has abdominal symptoms (164).

What's in a Name?

Many of the early IUDs were named after their inventors—for example, the Ota and Grafenberg rings after T.A. Ota of Japan and Ernst Grafenberg of Germany and the Lippes Loop after Jack Lippes of the US. With more recently developed IUDs, manufacturers have conducted market research to come up with product names that suggest effectiveness, reliability,and other positive images. For example, GynoPharma, the company that will market the TCu-380A in the US, used focus-group discussions (small group discussions with a trained interviewer) and surveys to decide on the name ParaGard for the TCu-380A. Market research found that, to potential users, the name ParaGard suggests a modern and effective IUD. GynoPharma favors the name because "Para" suggests to doctors an IUD for parous women. Their research suggests that women usually accept their doctor's recommendation for an IUD (464).

In many parts of the world all kinds of IUDs are referred to as the loop or the coil or, in Spanish, *el espiral* or, in Arabic, *al lawlab* after the Lippes Loop and the Saf-T-Coil. There are also folk names for IUDs, such as, in Morocco, *al amalia saghirah*, meaning "the small operation" in contrast to "the big operation," which refers to tubal ligation (456).

Social marketing programs in many countries have given attention to naming contraceptives that are purchased directly by consumers. Names chosen for oral contraceptives—such as Gulaf, meaning rose, in Nepal and Maya, meaning affection, in Bangladesh—suggest femininity and caring. Names chosen for condoms—such as Panther in various countries and Raja, meaning king, in Bangladesh—suggest strength and masculinity (471). In contrast, little effort has been given to finding IUD names that would appeal to users. Although a good name cannot substitute for a good IUD, an appealing name coupled with a catchy logo and attractive packaging could help to promote a positive image of IUDs and heighten interest among potential users.

Careful insertion technique—including performing a pelvic examination and sounding the uterus—can prevent most perforations (see p. 9). Special care is needed when the uterus is retroverted (bent backward) (449).

Expulsion

After IUD insertion, uterine contractions can push the device downward, causing partial or complete expulsion. Expulsion rates vary from less than one to more than 10 per 100 women in the first year of use (see Table 1). In general, unmedicated IUDs are expelled more often than copper devices. Among the copper devices, most studies have found that the Nova T and the Multiload IUDs are expelled least (73, 200, 381, 430). Most expulsions occur in the first year and especially the first three months after insertion (173, 314, 368, 385). Because undetected partial or complete expulsion can lead to unplanned pregnancy, IUD users should know how to check for the IUD strings to make sure that the device is still in place.

Several factors influence the chances of expulsion. Younger women and women who have never been pregnant or had children are more likely to expel their IUDs (333, 334, 340, 383, 437, 444). Correct insertion, with the IUD placed up to the fundus, is thought to reduce the chances of expulsion (60, 71) (see p. 9).

Intrauterine Pregnancy

The IUD is a very effective contraceptive. If pregnancy does occur, however, potentially severe complications can result. Medical attention is always needed.

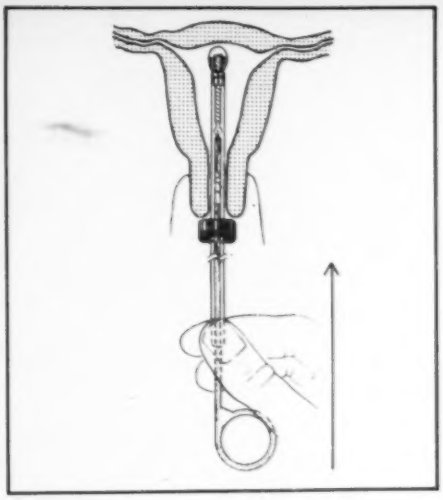
Spontaneous abortion is the most frequent complication of pregnancy with an IUD in place. Some 50 to 60 percent of uterine pregnancies spontaneously abort if the IUD is not removed (4, 195, 358, 371, 413, 463). This is $2^1/_2$ to 5 times more often than in other women (186, 413, 459). More than half of the spontaneous abortions in IUD users occur in the second trimester (215, 358). Septic (infected) second-trimester spontaneous abortion—a rare but life-threatening event—is 26 times more common in women whose IUDs are left in place than in women not using IUDs at the time of conception, according to a US study (109).

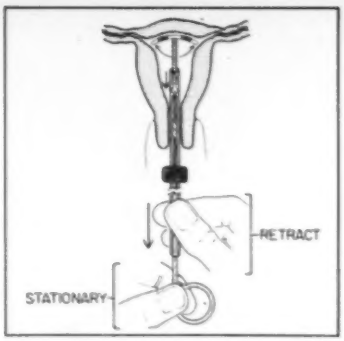
Because infection can occur in any pregnancy with an IUD in place, the IUD should be removed as soon as pregnancy is confirmed (1, 437). This markedly lowers the risk of spontaneous abortion and virtually eliminates the risk of septic abortion (4, 109, 195, 371). If IUD removal is difficult because the strings are not visible, WHO advises that the woman should be counseled about the risks of continuing her pregnancy (437).

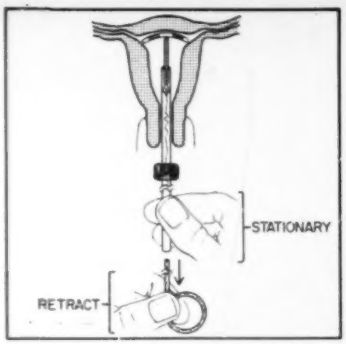
An IUD left in place during pregnancy also increases the risk of premature delivery, stillbirth, and low birth weight (413, 463). It does not increase the risk of other complications—birth defects, genetic abnormalities, or molar pregnancy (a uterine growth that mimics pregnancy) (152, 232, 276, 344, 371, 413).

Ectopic Pregnancies

Mounting evidence indicates that IUDs do not increase the risk of ectopic pregnancy. A recent WHO multicenter study—the largest study to date—found that IUD users were 50 percent *less* likely to experience ectopic pregnancies than women using no contraception (442). A US case-control study also found a significant protective effect (261). IUDs provide less protection against ectopic pregnancy than oral contraceptives,







The withdrawal method of IUD insertion is used for copper Ts, Multiloads, and the Progestasert. The tube containing the IUD is inserted up to the uterine fundus (left). The tube is withdrawn while the rod is held steady (center). Then the rod is withdrawn (right). Because insertion techniques vary among IUDs, the manufacturer's specific instructions should always be followed exactly. These diagrams from *The Copper T380 IUD: A Manual for Clinicians*, prepared by PIACT, show insertion of a TCu-380A (290).

however (261, 442), and, according to the WHO study, barrier methods (442).

IUDs protect against intrauterine pregnancies better than against ectopic pregnancies. Thus, *when* an IUD user becomes pregnant, the pregnancy is more likely to be ectopic than a pregnancy in another woman (369, 424, 442, 463). In IUD users an estimated one in 30 pregnancies, or 3 to 4 percent, is ectopic. In the general population about one in 125 pregnancies, or 0.8 percent, is ectopic (39, 273, 332, 369).

Any pregnancy in an IUD user is uncommon, however. Thus ectopic pregnancy in an IUD user is rare. For most of the widely used IUDs, less than 1.5 ectopic pregnancies occur per 1,000 woman-years of IUD use (69, 73, 314, 327, 330, 335).

Differences among devices. Among inert and copper devices, ectopic pregnancy rates seem to reflect overall effectiveness. For example, two of the most effective IUDs, the TCu-380A and MLCu-375, have the lowest ectopic pregnancy rates—0.25 and 0 per 1,000 woman-years, respectively, according to a compilation of results from major trials (69, 73, 314, 330, 335). In contrast, the Progestasert has higher rates than other IUDs—4 to 5 per 1,000 woman-years (116, 327, 400). Very few ectopic pregnancies have been reported with the LNG-20 IUD (224, 330), in part because it sometimes suppresses ovulation (257).

While some questions about IUDs and ectopic pregnancy remain unanswered, the clinical implications are clear:

- Women using IUDs should be told about ectopic pregnancy. They should know the symptoms—abdominal pain, dark and scanty vaginal bleeding, intermenstrual bleeding, or amenorrhea—and to get medical care promptly.
- If an IUD user conceives or shows symptoms of ectopic pregnancy, health care providers should always look for ectopic pregnancy.
- An IUD is not the first choice for a woman at high risk of ectopic pregnancy—as indicated by previous ectopic pregnancy or pelvic inflammatory disease. Other methods provide more protection.

Other Complications

There is no evidence that IUDs cause any type of cancer (148, 194, 280, 332, 436). Unlike oral contraceptives, however, IUDs do not protect against endometrial or ovarian cancer, and, unlike barrier methods, they do not protect against cervical cancer. Health care providers need to remember that abnormal bleeding in an IUD user is not always due to the device but may be a symptom of malignancy or other disease (45, 154). IUD users may be more likely to develop nonspecific vaginitis (often called bacterial vaginosis), according to two recent studies (455, 474), but more confirmation is needed. (For discussion of pelvic inflammatory disease, a more severe but uncommon complication, see pp. 12-15.)

Death from causes related to reproduction are rare among IUD users. WHO and US researchers have estimated about one to two deaths per 100,000 IUD users per year—from infection, ectopic pregnancy, or second-trimester septic abortion (262, 301, 384, 436). Mortality among women not practicing contraception is considerably higher because of the risks of childbearing. In developing countries maternal mortality rates range from 50 to 700 deaths per 100,000 live births, and in developed countries, from 3 to 30 (475).

INSERTION

Proper IUD insertion reduces the risks of pregnancy and of all major side effects—expulsion, bleeding and pain, perforation, and infection. IUDs can be inserted safely at any time during the menstrual cycle as long as pregnancy is ruled out. Postpartum insertion also is safe and is convenient. High expulsion rates are a drawback, however.

Insertion Technique

The objective of IUD insertion is to place the IUD correctly while minimizing the woman's discomfort and the risk of complications. Successful IUD insertion requires:

- **Explaining the procedure** to the client and responding to her questions and concerns. This helps the client relax, making insertion easier and less painful.
- **Careful technique** during all phases of insertion. This reduces the client's discomfort and reduces the chances of uterine perforation, cervical laceration, and other complications (57, 62, 63, 123).
- **Aseptic (sterile) technique** throughout the procedure including careful disinfection of all instruments (see box, p. 10). This minimizes the chances of pelvic inflammatory disease.

- **Careful bimanual pelvic examination and sounding of the uterus** to determine its depth and direction. This reduces the risk of perforating the uterus, which usually occurs because the sound or IUD is inserted too deeply or at the wrong angle (7, 63, 190, 395, 437).

- **IUD placement high in the uterus** (that is, at the fundus). This minimizes expulsions, accidental pregnancies, and possibly bleeding (71, 269, 332, 382).

IUD insertion is usually uncomplicated. While many women experience discomfort, less than 5 percent experience

Disinfecting Instruments for IUD Insertion

Meticulous aseptic techniques are essential to minimize the risk of infection during IUD insertion. These techniques include handwashing with an antiseptic or, preferably, use of sterile gloves, cleaning the vagina and cervix with an antiseptic before IUD insertion, and proper cleaning and disinfection of instruments (283).

Disinfection of instruments and IUDs, if properly carried out, destroys most microorganisms including hepatitis B, herpes simplex type 2, and human papilloma virus (96). The standard high-level disinfection procedures, described here, also destroy human immunodeficiency virus (HIV), which causes AIDS (435). True sterilization—that is, destroying *all* microorganisms—for example, by autoclaving metal instruments—is desirable but not necessary (96, 191, 436).

Metal instruments, such as forceps and uterine sounds, should be disinfected by boiling or by soaking them in a high-level disinfectant such as glutaraldehyde or in alcohol or iodine solutions—sometimes called "cold sterilization" (see table at right). Low-level disinfectants such as benzalkonium chloride (for example, Zephiran) and cetrimide solutions (such as Savlon, which is a mixture of cetrimede and chlorhexidene) do not kill viruses and some other microorganisms and should not be used (96, 283).

Whichever disinfectant is used, instruments must be thoroughly cleaned beforehand. They should be scrubbed with a brush and soap or detergent to remove blood, mucus, and other organic soil that may trap microorganisms (281, 283, 435).

The health care provider must be sure that the IUDs themselves are disinfected before insertion. Copper IUDs are supplied in individual sterilized packages with a sterile inserter. If the package is damaged, the IUD and inserter may no longer be sterile, and it is best to discard them (36, 191, 213). If this is not feasible, IUDs and inserters can be disinfected by soaking in a high-level disinfectant (see table). Lippes Loops and their reusable inserters are usually supplied in bulk, unsterilized, and must always be disinfected before use. Copper and plastic IUDs should never be boiled or autoclaved because heat deforms them (436). The Lippes Loop reusable inserter can be boiled, however (191). If after disinfection an IUD is not used immediately, it can be disinfected again. This should not be done more than three times because the plastic may become brittle (165).

Disinfectants must be carefully prepared according to the manufacturer's instructions. Fresh solution should be prepared daily or more often, as needed (190, 436).

Instruments and IUDs should be carefully handled after disinfection so that they are not contaminated. Providers should touch them only with sterile gloves or sterile tools. Disinfected IUDs and instruments can be stored dry for a few days, wrapped in sterile cloth (281). Instruments soaked in disinfectants must be thoroughly washed in sterile (boiled or sterile bottled) water before use. Disinfectant solution left on instruments can irritate the client's skin or uterus (281, 435).

Methods for Disinfecting Instruments and IUDs

Copper IUDs and Inserters, Lippes Loops

Soak for 30 minutes in aqueous iodine solution (1:2500)

or

Soak for 30 minutes in 70 percent alcohol (ethyl or isopropyl)

or

Soak for 30 minutes in activated glutaraldehyde (Cidex or Sporiciden) or, for complete sterilization, Cidex for 10 hours or Sporiciden for 6 3/4 hours

After any of these, wash IUDs and inserters thoroughly in sterile or boiled water.

Reusable Lippes Loop Inserters

Soak for 30 minutes in aqueous iodine solution (1:2500)

or

Soak for 30 minutes in 70 percent alcohol (ethyl or isopropyl)

or

Soak for 30 minutes in activated glutaraldehyde (or longer, as above)

or

Boil for 20 minutes in a container with a lid (longer at high altitudes)

After the first three methods, wash inserters thoroughly in sterile or boiled water.

Metal Instruments, Rubber Gloves

Soak for 30 minutes in activated glutaraldehyde (or overnight, as above). Wash instruments and gloves thoroughly in sterile or boiled water.

or

Boil for 20 minutes in a container with lid (longer at high altitudes). (Rubber gloves should not be boiled.)

or

Autoclave for 30 minutes at 120°C with 15 pounds of pressure.

Sources: Finishing Enterprises (461), IPPF (164), Kleinman (190, 191), PIACT (290), Porter (283), WHO (435)

moderate to severe pain. Vasovagal reactions—such as perspiring, vomiting, and brief fainting—and cervical laceration occur in one percent of women or less. These problems are generally brief and rarely require immediate IUD removal. They do not affect later IUD performance (58). Women who have never given birth, have had few births, or have had a long interval since last giving birth are most likely to have these problems. Analgesics reduce discomfort (300).

Health care providers should never use force to insert an IUD. If the cervical canal is narrow, dilators or a laminaria tent may be used. (A laminaria tent is a small stick of a special type of seaweed that slowly expands as it absorbs moisture.) Cervical dilation does not increase the risk of later expulsion (55). Alternatively, the health worker may ask the client to return during her menstrual period, when insertion may be easier, or refer her to a more experienced provider. Insertion failures are rare—2 to 8 per 1,000 attempted insertions—and are usually due to excessive pain or to the larger size of inserter used with some types of IUDs (63).

Copper Ts and most other IUDs are appropriate for women with a normal uterine length—at least 6.5 cm. Smaller IUDs such as the MLCu-250 Short or Mini are recommended for a woman with a shorter uterus (104, 105, 290, 395, 411).

Timing of Insertion

IUD insertion is safe and effective at any time during the menstrual cycle (70, 90, 375, 426, 437). An international study of about 12,000 women who had IUDs inserted at different times during their menstrual cycles and similar US studies found no advantage to the conventional practice of insertion during the first five days of the menstrual cycle (70, 91, 426). Thus, for a woman who is reasonably sure that she is not pregnant, the best time to insert an IUD is when she comes to the health center to request it (398).

Postpartum Insertion

Postpartum IUD insertion within a few days after delivery is safe and convenient, with no increased risk of infection, perforation, or bleeding (19, 71, 160, 304, 305, 373, 375).

The serious disadvantage of postpartum insertion is the high expulsion rate. The IUD is easily expelled after childbirth because the uterus is contracting and the cervix is dilated (341). When the IUD is inserted immediately postpartum, expulsion rates at six months ranged from 31 to 41 per 100 in a WHO multicenter trial and from 12 to 22 in a Family Health International multicenter trial (71, 443). Insertion one to seven days after delivery results in even higher expulsion rates (71). Because insertion between two to three days after delivery through six to eight weeks postpartum has not been thoroughly studied, various groups advise special caution or even advise against inserting IUDs during this period (164, 398, 433).

IUDs modified to reduce expulsion after postpartum insertion have met with little success for the most part (60, 71, 361, 377, 410, 443). Research continues, however. Researchers are testing a modified TCu-380A. A piece of chromic catgut suture is looped around the top of the T. When the IUD is inserted, the catgut loop is pushed into the wall of the uterus with a needle inserter. Thus the IUD is anchored in place for three to five weeks until the catgut dissolves (367).

The health care provider's skill and experience are probably more important in reducing expulsions and other complications than the type of device used (60, 361, 377, 382). A large international study of immediate postpartum insertions found that expulsion rates at three months were almost twice as high for insertions performed during the first half of the study, when the practitioners were less experienced, than in the second half (60). Similarly, a Belgian study found that rates of expulsion, accidental pregnancy, and removal for pain, bleeding, and other medical reasons were lower when IUDs were inserted postpartum by more experienced practitioners (382).

IUD insertion is safe and effective at any time during the menstrual cycle.

Insertion at cesarean section. Nine studies in China and a small study in Belgium, examining IUD insertion through the abdominal incision immediately after cesarean delivery, found low expulsion rates (59, 64, 409, 437). Because most of this research has involved stainless steel Chinese IUDs, however, WHO recommends against routine postcesarean insertion of copper and hormone-releasing IUDs until more is known. When there has been prolonged labor or premature rupture of the membranes, postcesarean insertion should certainly be avoided because of the risk of infection (437).

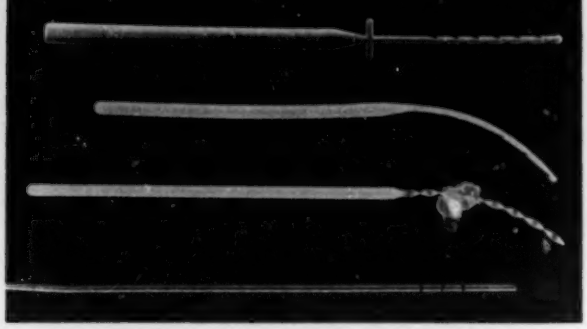
Breastfeeding and IUDs. The IUD is an ideal contraceptive method for lactating women (437) because it has no effect on the quantity or composition of breast milk (53, 72). There is concern, however, based on a few case reports and a case-control study involving 32 women, that insertion during lactation may involve a higher risk of uterine perforation (54, 144, 228). The results of the case-control study may be due to flaws in methodology, however (328). Another small study found that breastfeeding made no difference to the risk of perforation (56). Until conclusive research is done, special care—including especially careful sounding of the uterus to determine uterine depth—should be used when inserting an IUD in a lactating woman (398, 433).

Postabortion Insertion

Conception can occur as early as 10 days after abortion. Therefore effective contraception is needed immediately (34). IUDs can safely be inserted after spontaneous or induced abortion except in women with pelvic infections (211, 436, 445). WHO studies show moderate expulsion rates following first-trimester abortions—ranging at two years from 5 to 9 per 100 women after induced abortion and from 10 to 14 after spontaneous abortion. With IUD insertion following a second-trimester abortion, rates of expulsion and of removal for pain and for other medical reasons are markedly higher (436, 445).

REMOVAL

IUD removal is usually a routine and uncomplicated procedure. It can be done at any time during the menstrual cycle. To remove the IUD, the health worker pulls the strings slowly and gently with forceps. A tenaculum can be used to steady the cervix and align the endocervical canal and the vaginal and uterine cavities (357). If removal is not easy, the cervix can be dilated with metal dilators or a laminaria tent. Alternatively,



IUD removal is usually uncomplicated. When the strings must be removed from the cervical canal, however, a narrow forceps can be used. Instruments to retrieve missing strings from the uterine cavity include (top to bottom) the Emmett IUD thread retriever, the Retrievette, the Mi-Mark Helix, and the experimental FHI string retriever.

removal can be attempted again during menstruation, when the cervix is naturally softened (142, 190).

An international multicenter study found that less than 2 percent of attempted removals of standard IUDs proved difficult (61). One common reason for difficult IUD removal is that the IUD strings are "missing"—that is, they cannot be located in the vagina near the cervix (342). Usually, the strings have slipped up into the cervical canal, perhaps because they were cut too short at insertion. After ruling out pregnancy, the health care provider should use narrow forceps to probe the cervical canal and draw out the strings. A study in the UK found that missing strings could be retrieved this way in 50 percent of cases (202). If this fails, the strings may have retracted into the uterine cavity, or the IUD may have been expelled without the woman's knowledge. A sound can be used to check whether the IUD is in place. If it is, any of several special instruments can be used to draw out the strings (see photo above). Once the strings are retrieved, and if the woman wishes, it is often possible to leave the IUD in place if it has not been dislodged. Vacuum aspiration also can be used to find the strings. This usually dislodges the IUD, however (130). If the strings cannot be retrieved, IUDs can be removed from the uterus with forceps, curettes, or hooks. The health care provider must be very careful not to injure the uterus.

A less common reason for missing strings or difficult removal is that the IUD has partially or completely perforated the uterus or become embedded in the uterine wall. Perforation should be suspected particularly if the woman is experiencing abdominal or pelvic pain or irregular bleeding (449). If facilities are available, x-rays, hysterography (x-rays of the uterine cavity after instillation of a contrast medium), hysteroscopy (direct visualization of the uterine cavity with a fiberoptic instrument), or ultrasound imaging can be used to diagnose perforation and embedding (7, 15, 133, 237, 303, 449).

INFECTION

Overall, women using IUDs are about twice as likely to develop pelvic inflammatory disease (PID) as women using no contraception, according to most studies (41, 78, 81, 209, 265, 421). This increased risk of PID is largely concentrated in the first few months after insertion and, thereafter, among women exposed to sexually transmitted diseases (STDs). For women in mutually faithful sexual relationships, IUDs pose little risk except in the first few months after insertion (208).

Pelvic inflammatory disease is a broad term for any infection ascending from the cervix into the uterus, fallopian tubes, and ovaries (422). PID is fairly common in developed countries. About one to two percent of all women of reproductive age develop PID every year (30, 421). In developing countries the incidence is unknown but may be higher in some areas (244, 302). STDs and postpartum and postabortion infections are major causes of PID (464).

The complications of PID often are severe. Even a single infection can permanently damage the lining of the fallopian tubes. This may partially or totally block one or both tubes, substantially increasing the chances of ectopic pregnancy and infertility (136, 369, 421, 424). With each episode of PID the chances of tubal blockage and infertility increase (422). A woman who has had PID is more likely to have chronic pelvic pain than other women and is more susceptible to repeated infections (422). All these complications are more likely if PID is not treated promptly and appropriately (see box, p. 13).

PID and IUD Use

Epidemiologic research in the 1970s and early 1980s tended to overestimate the risk of pelvic infection from IUD use. These studies reported that IUD users were up to 10 times more likely to develop PID than other women (219). Several factors account for the initial overestimate, including:

- In most early studies the comparison group included women using oral contraceptives and barrier methods—methods that protect against PID.
- The risks for specific types of IUDs, particularly the Dalkon Shield, were not analyzed separately. The higher risk with the Dalkon Shield inflated overall risk estimates for all IUDs.
- Many studies did not take into account a number of important factors that affect the risk of PID—age, number of sexual partners, and history of PID (437).

Two large studies published in the 1980s have taken these earlier problems into account and find a lower risk. The US Women's Health Study found that IUD users were 1.6 times as likely to be hospitalized for PID as women using other methods or no method (41). A World Health Organization (WHO) study in 12 countries found that in developing countries IUD users with children were 2.3 times more likely to develop PID than women using no contraception. The relative risk for similar women in developed countries was 4.1 (446). IUD use also has been linked with a two- to threefold greater risk of primary tubal infertility, which is known to be caused by PID (see box, p. 14).

For women in mutually faithful sexual relationships, IUDs pose little risk of infection except in the first few months.

Diagnosis and Treatment of Pelvic Inflammatory Disease

EARLY TREATMENT of pelvic inflammatory disease (PID) prevents severe tubal and abdominal infection. Also, early treatment reduces tubal damage and thus the chances of later infertility and/or ectopic pregnancy (178, 366).

Treatment for PID involves five steps:

1. Early diagnosis,
2. Antibiotic therapy,
3. Removal of the IUD, if present,
4. Frequent follow-up, and
5. Treatment of sexual partners (138).

Diagnosing PID can be difficult (169, 366, 421, 437). Some women may have very mild symptoms; others, none at all. Moreover, most signs and symptoms are not specific to PID. (For clinical signs of PID, see box, p. 23). They also may indicate ectopic pregnancy, appendicitis, or other abdominal illness (93, 421, 423). Laboratory tests can help diagnose PID. Strong indicators include: a positive cervical culture for gonorrhea or chlamydia; a white blood cell count of more than 10,000/mm^3 blood; and a gram stain of the endocervix positive for gram-negative intracellular diplococci (93, 138, 366).

Antibiotics effective against a wide range of bacteria are required to treat PID because many different organisms can cause the infection. Gonorrhea, chlamydia, and other sexually transmitted organisms often cause first episodes of PID. Subsequent infections usually involve bacteria normally found in the lower genital tract, such as *Escherichia coli, Proteus, Bacteroides, Clostridium,* and *Peptostreptococcus* (93, 128, 366, 422). Often, several different kinds of bacteria are involved in repeated episodes of PID.

Once the woman starts antibiotics, she should be followed carefully to ensure that the medicine is effective and to rule out other serious illness. Some clinicians recommend that a woman abstain from sexual intercourse until both she and her partner have finished the full course of antibiotics (93, 142). If the woman does not improve by 48 to 72 hours after starting antibiotics or if she develops a tubal abscess, she should be hospitalized for more intensive care (93, 366, 397, 420, 437). In severe cases surgery may be needed.

The World Health Organization and other authorities recommend that, if the woman is using an IUD, it should be removed 24 to 48 hours after she starts taking antibiotics (7, 93, 368, 397, 420, 437). Only one small study, however, has compared women whose IUDs were removed and women whose IUDs were left in place after diagnosis of PID. There was no difference between the two groups in the course of recovery (346).

Sexual partners of women with PID are likely to be infected with a sexually transmitted disease also. Even if asymptomatic, they should be tested and/or examined for clinical signs and symptoms of sexually transmitted diseases (see box, p. 23). In a recent British study 79 percent of the male partners of women with PID had nongonoccocal urethritis, but over three-quarters of these infected men had no symptoms (168). The woman and her partner(s) should be treated simultaneously with antibiotics effective against gonococcal and chlamydial infections (366, 397, 420).

Recommended Antibiotic Regimens To Treat PID

Out-Patient Treatment

Probenecid
One dose, 1.0 g by mouth
and
one dose of ONE of the following:

Cefoxitin	2.0 g IM
Amoxicillin	3.0 g by mouth
Ampicillin	3.5 g by mouth
Penicillin G	4.8 million units IM at 2 sites

Followed by either

Doxycycline
100 mg by mouth,
2 times/day, 10-14 days
and
Metronidazole
500 mg by mouth,
3 times/day, 14 days

OR

Tetracycline
500 mg by mouth,
4 times/day, 14 days

OR*

Ceftriaxone
250 mg IM, one dose

Followed by

Doxycycline
100 mg by mouth,
2 times/day, 10-14 days

* The latter regimen is preferable where antibiotic-resistant strains of gonorrhea are prevalent.

Hospital In-Patient Treatment

Doxycycline
100 mg, IV 2 times/day
and
Cefoxitin
2 grams IV, 4 times/day

Both for at least 4 days and at least 48 hours after patient improves

Followed by

Doxycycline
100 mg by mouth,
2 times/day, 10-14 days

OR

Clindamycin
900 mg IV, 3 times/day
mixed with
Gentamicin
(for women with normal kidney function)
2.0 mg/kg IV, then
1.5 mg/kg IV, 3 times/day

Both for at least 4 days and at least 48 hours after patient improves

Followed by

Clindamycin
450 mg by mouth,
4 times/day, 10-14 days

Note: These regimens are guidelines only. Other drugs may be used depending on availability and cost. Treatment of PID with penicillin, ampicillin, amoxicillin, or a cephalosporin alone may not be effective and is not recommended.
Sources: US CDC (397, 463), WHO (437)

Population Reports

Although IUD users are more likely to develop PID than nonusers, it is still an uncommon complication. A WHO study of multiparous women, mostly in developing countries, who were using copper IUDs reported a cumulative rate of removal for PID of less than one per 100 women after six years of use (307). Another multicenter study, involving women in Denmark, Finland, and Sweden, reported seven removals per 100 women after five years. Many of these women were young and unmarried and thus at higher risk for PID (226) (see Table 1).

Factors Influencing the Risk of Infection

A number of factors clearly influence the risk of infection among IUD users:

Insertion. A woman is most likely to develop PID just after insertion (33, 41, 78, 209, 247, 307, 326, 356). In the Women's Health Study women using various IUDs, excluding the Dalkon Shield, were four times more likely to develop PID in the first month after insertion than women using no contraception. Two to four months after insertion, IUD users were 1.7 times more likely to develop PID. Thereafter IUD users were not at significantly higher risk of PID than women using no method (209). Women should therefore be especially alert to any symptoms of infection in the first few months after IUD insertion and should get prompt medical attention if they appear (see box, p. 25).

Type of IUD. The Dalkon Shield—which is no longer on the market—was as much as five times more likely to cause PID and two times more likely to cause tubal infertility than other IUDs (78, 81, 177, 209, 415). Moreover, with the Dalkon Shield, the high risk of developing PID persisted in long-term users (209).

It is not clear whether the risk of PID varies among other IUDs. Several studies show no difference in infection rates with the Lippes Loop, Cu-7, Saf-T-Coil, LNG-20, and Progestasert (177, 209, 335, 343, 422). In contrast, two studies on *infertility*,

Return of Fertility After IUD Use

Most women who discontinue IUD use to become pregnant conceive as rapidly as nonusers. IUD use does, however, increase the risk of developing pelvic inflammatory disease (PID). Sometimes this leads to tubal infertility.

Two recent US case-control studies report that, overall, childless women with tubal infertility were two to three times more likely to have used IUDs than women having their first child. The risk of tubal infertility varied markedly with the type of IUD and with the number of the woman's sexual partners. Former copper IUD users had only slightly greater risk of tubal infertility than women who had never used IUDs. In contrast, former Dalkon Shield users had the highest relative risk (78, 81). Women who had had only one sexual partner in their lifetimes, regardless of the type of IUD used, had no increased risk of tubal infertility. Women who had had more than one partner, however, had three to four times higher risk, depending on the type of IUD. For women who already had one child, copper IUDs carried no increased risk of future infertility (78).

Adjusted Relative Risks of Tubal Infertility Among Childless Women by Type of IUD and Number of Sexual Partners

	Number of Partners	
Type of IUD	**One**	**More than One**
None	1.0	1.5*
Copper	1.1	2.8*
Other	0.7	4.2*

*Statistically significant compared with nonusers with one partner

Adjusted for year of menarche, time between menarche and date women began trying to conceive, religion, education, and smoking

Source: Cramer et al. 1985 (78)

In contrast to these two case-control studies, most cohort studies, which have followed women who stopped using IUDs, have found no indication of impaired fertility. In 10 studies involving a total of about 3,800 women, from 72 to 96 percent of women *conceived* within a year after discontinuation (5, 9, 23, 84, 267, 291, 294, 332, 337, 431) and, in one large study, 51 percent *gave birth* within a year (and therefore a higher percentage presumably were pregnant) (414). These rates are in the same range as rates among women who have never used contraception (32, 323).

Most of these studies involved women who had no complications with IUD use (5, 9, 23, 84, 267, 291, 294, 332, 337) and who were unlikely to be exposed to sexually transmitted diseases—married women (9, 294, 337, 414) or women with children (9, 23, 84, 267, 414). Also, fertility rates among former IUD users were not directly compared with rates among women who had never used contraception. Therefore, these studies are not well-suited to evaluating whether IUD use might impair fertility in a small percentage of users. One cohort study did involve women who at some time had discontinued IUD use because of complications—pain, bleeding, or discharge. These women gave birth at only a slightly lower rate than groups of other women who had discontinued IUDs or other methods to become pregnant (414).

It is not clear whether longer IUD use is more likely to lead to infertility. Most cohort studies have found that women who used IUDs for long periods of time conceived about as rapidly as short-term users (9, 20, 23, 179, 291, 294, 337). One of the US case-control studies, however, found that the risk of infertility was slightly higher with longer use, once women who had used their IUDs for less than three months were excluded. Most of the women using their IUDs for less than three months had had their IUDs removed because of complications (78).

A recent case-control study suggests that current and former IUD users are no more likely than nonusers to develop tubal adhesions (fibrous bands of tissue), which can be caused by PID and are a major cause of tubal infertility. The study involved over 2,100 multiparous women undergoing voluntary sterilization. None reported using a Dalkon Shield, although not all could remember the type of IUD they had used. The results of this study fail to support other reports that IUD use increases the risk of PID and infertility (462).

rather than PID, reported lower risks of tubal blockage with copper IUDs than with unmedicated IUDs (78, 81) (see box, p. 14).

Exposure to sexually transmitted diseases. Much of the excess risk of PID in IUD users, apart from the first months after insertion, may be due to sexually transmitted diseases (208, 253, 437). Having had multiple partners—and, as a result, greater exposure to STDs—is thus a major PID risk for IUD users, as it is for all women regardless of contraceptive use. Women in mutually faithful sexual relationships face minimal risks, presumably because of less exposure to STDs (94, 208, 359, 360, 366, 423). If an IUD user's partner has more than one sexual partner, this also may increase her risk of PID (208, 356). An IUD user's risk of tubal infertility also may be associated with the number of sexual partners (78) (see box, p. 14).

Age. WHO multicenter studies found that, in the developing countries studied, risks of infection among IUD users were the same for younger and older women (446). In contrast, in developed countries PID in IUD users, as in nonusers, occurs more often among women under age 25 (24, 33, 41, 227, 360, 418, 421, 446). This may be at least in part because these younger women are less likely to be married or have mutually faithful sexual relationships (24, 33, 418, 446).

Duration of IUD use. In most studies the chances of ever developing PID remain unchanged or even decrease with duration of IUD use (41, 343, 415, 463). The risk of contracting very severe PID may increase with time, however (201, 356, 463). In the Women's Health Study women who had used the same IUD—regardless of type—for five or more years were about five times more likely than nonusers to develop severe PID requiring surgery. Women who had used the same IUD for less than five years were no more likely to have severe PID than nonusers. Long-term IUD users with more than one sexual partner in the year before hospitalization were at the highest risk of severe PID (356). The researchers speculate that most of these severe PID cases might have been caused by actinomyces (355). Actinomyces is an anaerobic bacterium that is usually harmless but may sometimes cause severe PID in long-term IUD users.

Mechanisms of Infection

IUD use may increase the risk of pelvic infection in several ways (234). Organisms that normally live in the lower genital tract are introduced into the uterus during insertion (234), which occasionally leads to infection. Also, a sexually transmitted infection in the lower genital tract may be spread to the upper genital tract during insertion. In addition, nonbacterial inflammation of the fallopian tubes is more common in IUD users than nonusers (22, 74, 277, 339, 440). This inflammation may reduce resistance to disease-causing organisms (95, 339).

Some researchers suspect that cervical bacteria can move up the IUD string into the uterus (350, 352). Studies of IUDs without strings generally have not found lower rates of infection, however (see p. 18). One proposed explanation for the high rate of infection with the Dalkon Shield is that its multifilament string permitted bacteria to rise into the uterus more readily (296, 336, 372). All strings on currently available IUDs are monofilament.

Prevention

Can pelvic infection among IUD users be prevented? Several approaches are being tried:

Iyali sai farin ciki, ga Uwargida da wani ciki bayan da na karshe ya girma. Da zaran an cire wanna roba sai ciki.

"The happy family with the mother pregnant again after the last child is more grown up. Once the IUD is removed, the woman can become pregnant again." This illustration comes from a booklet for IUD users prepared by the Planned Parenthood Federation of Nigeria with assistance from Johns Hopkins Population Communication Services.

- Better screening of clients,
- Prophylactic antibiotics at insertion,
- Better disinfection and insertion techniques, and
- IUDs without strings or with strings coated in disinfectant.

Identifying the right clients for IUDs is probably the most important way to reduce pelvic infections. Because PID is linked to sexually transmitted diseases, the best candidate for an IUD is a woman living in a stable, mutually faithful sexual relationship (127, 442, 437).

Administering broad-spectrum antibiotics just before IUD insertion may reduce pelvic infection in the first months of use. At the Kenyatta National Hospital, University of Nairobi, in Kenya, about 1,800 women received either a 200 mg oral dose of doxycycline or a placebo one hour before IUD insertion. According to preliminary analysis, in the six weeks after insertion the women receiving antibiotics had a 31 percent lower incidence of PID. The number of women who developed PID was too small, however, to draw firm conclusions. Also, additional studies are needed to evaluate the best dose and duration of prophylactic antibiotics (326). A similar study is underway at the University College Hospital in Ibadan, Nigeria (100). The cost of the antibiotic is fairly low—$.22 (US) per

(Text continues on page 18.)

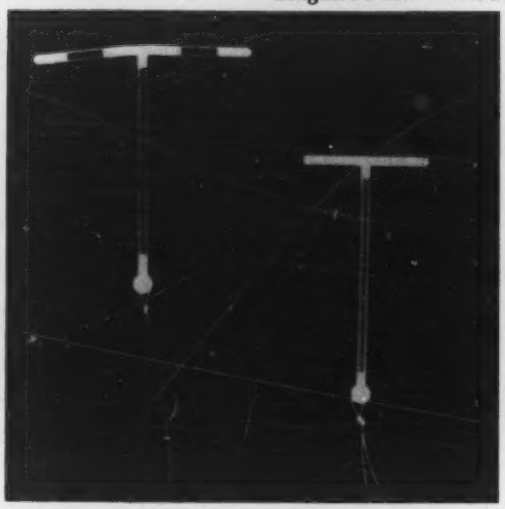
TCu-380A, TCu-380Ag, and TCu-380 Slimline (TCu-380S)

Description: Polyethylene with barium sulfate added for visibility on x-rays. 314 mm^2 copper wire on vertical stem; two 33 mm^2 solid copper sleeves on each transverse arm. The wire in the 380Ag has a silver core. On the 380S the copper sleeves are placed at the ends of the arms and recessed into the plastic.

Developers: Population Council (US) and Ortho Canada (TCu-380S)

Date first marketed: 1982 (TCu-380A)

Major distributors: TCu-380A—Finishing Enterprises, US; P.T. Kimia Farma, Indonesia (trial production); Produtos Medicos Ltda., Brazil; Gyno-Pharma, Inc., US (brand name Para-Gard; sales beginning 1988); TCu-380A and TCu-380S (brand name Gyne T Slimline)—Ortho Canada; TCu-380S—Cilag, France; TCu-380Ag—Leiras Medica, Finland.



Length: 36 mm **Width:** 32 mm

Strings: Two white (formerly blue)

Inserter type and diameter: Withdrawal; 4.4 mm (All use the same inserter tube, but TCu-380S arms fit completely in tube. With TCu-380A and Ag only the tips of the arms fit inside the tube.)

Approved lifespan: TCu-380A—US and UK, 4 years; various other European countries, 5 years. TCu-380Ag—Finland, 5 years. TCu-380S—various European countries and Canada, $2^1/_2$ years.

Areas of major use: TCu-380A—worldwide except China; available in US in 1988. TCu-380Ag—Finland. TCu-380S—Canada, Western Europe, Hong Kong.

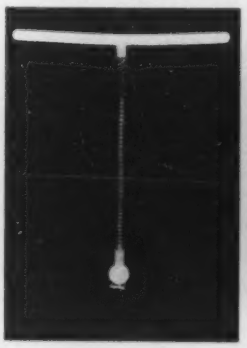
TCu-200, TCu-200B, and TCu-200Ag

Description: Polyethylene with barium sulfate added for visibility on x-rays. 200 mm^2 copper wire wrapped around stem. The wire on the TCu-200Ag has a silver core. The TCu-200B (shown) has a ball at the tip of the stem; the TCu-200 does not.

Developers: Howard Tatum (US) and Jaime Zipper (Chile)

Date first marketed: 1972

Major distributors: TCu-200B—Finishing Enterprises, US, and Produtos Medicos Ltda., Brazil; TCu-200—Ortho Canada, and Leiras Medica, Finland; TCu-200Ag—Leiras Medica, Finland



Length: 36 mm **Width:** 32 mm

Strings: Two; color varies

Inserter type and diameter: Withdrawal; 4.4 mm

Approved lifespan: US, 4 years; various European countries, 3 years

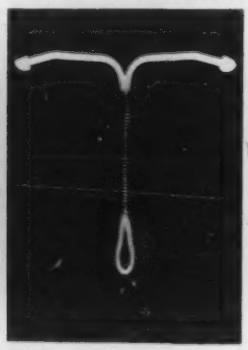
Areas of major use: Worldwide except China and US

Nova T

Description: Polyethylene with barium sulfate added for visibility on x-rays. 200 mm^2 copper wire with a silver core wrapped around the stem.

Developers: Outokumpu Oy (Finland)

Date first marketed: 1979



Major distributors: Leiras Medica, Finland; A.B. Kabi, Sweden; Schering AG, West Germany.

Length: 32 mm

Width: 32 mm

Strings: Two white

Inserter type and diameter: Withdrawal; 3.6 mm

Approved lifespan: Various European countries, 5 years

Areas of major use: Europe, Canada, Australia, New Zealand

Lippes Loop

Description: Polyethylene with barium sulfate added for visibility on x-rays. Available in four sizes, designated A (left) through D (right).

Developer: Jack Lippes (US)

Date first marketed: 1962

Major distributors: Finishing Enterprises, US; P.T. Kimia Farma, Indonesia (in-country distribution only).

Length: A—26.2 mm; B—25.2 mm; C—27.5 mm; D—27.5 mm

Width: A—22.2 mm; B—27.4 mm; C—30.0 mm; D—30.0 mm

Strings: Two; A—blue, B—black, C—yellow, D—white

Inserter type and diameter: Push-out; 4.7 mm

Areas of major use: Developing countries except China

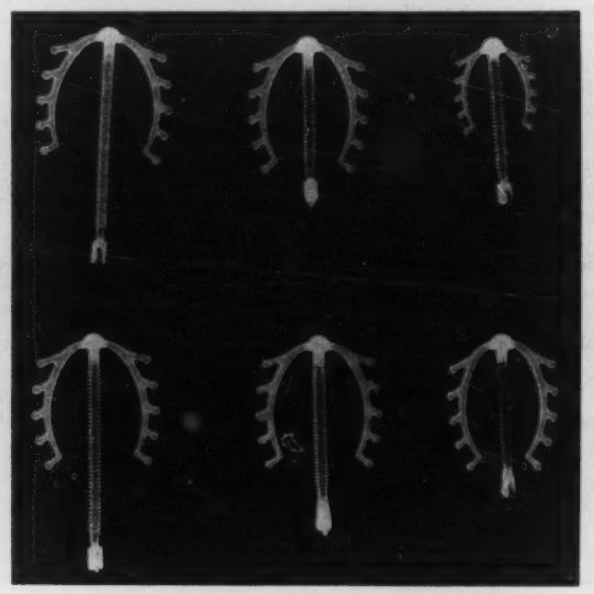
Multiload-250 (MLCu-250) and 375 (MLCu-375)

Description: Polyethylene with two flexible arms with spurs. The MLCu-250 has 250 mm^2 copper wire on the stem and is available in 3 sizes (top, left to right)—Standard, Short, and Mini. The MLCu-375 has 375 mm^2 copper wire and is available in 3 sizes (bottom, left to right)—Standard, Short, and SL.

Developer: W.A.A. van Os (Netherlands)

Date first marketed: 1974

Distributors: Produced by Multilan AG, Switzerland; Biotechno, Brazil (for in-country distribution only); and P.T. Kimia Farma, Indonesia (trial production). Distributed through subsidiaries and agents of Organon, Netherlands, member of AKZO Pharma Group; Parke-Davis, Italy; Laboratoires CCD, France.



Length: Standard (250 and 375)—35 mm; 375SL—29 mm; 250 Short—24 mm; 250 Mini—24 mm

Width: Standard (250 and 375), 375SL, 250 Short—18 mm; 250 Mini—13 mm

Strings: Two black or colorless

Inserter type: Withdrawal (no plunger)

Insertion diameter: Standard (250 and 375), 375SL, and 250 Short—12 mm; Mini—9 mm. (Arms remain outside inserter tube.)

Approved lifespan: MLCu-250—most European countries, 3 years; MLCu-375—most European countries, 5 years.

Areas of major use: Europe; Australia; India; Indonesia and other Southeast Asian countries; New Zealand, Latin America.

TCu-220C

Description: Polyethylene with barium sulfate added for visibility on x-rays. 220 mm^2 copper in seven copper sleeves—2 on the arms and 5 on the stem.

Developer: Population Council (US)

Date first marketed: 1980

Major distributors: Laboratorios Alpha, Mexico; Tianjin Medical Instrument Corporation, Factory No. 4, China (in-country distribution only).

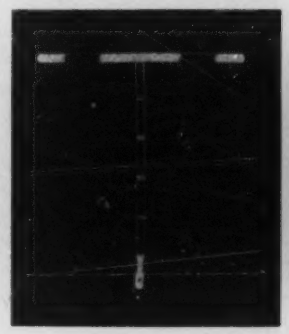
Length: 36 mm **Width:** 32 mm

Strings: Two

Inserter type and diameter: Withdrawal; 4.4 mm

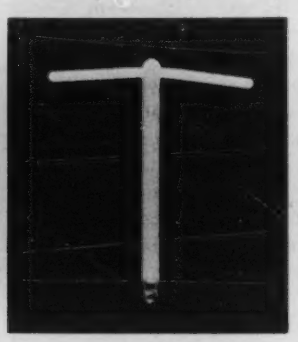
Approved lifespan: Mexico, 3 years

Areas of major use: China, Mexico



Progestasert Intrauterine Progesterone Contraceptive System

Description: Ethylene vinyl acetate copolymer. Vertical stem contains a reservoir of 38 mg progesterone and barium sulfate (for visibility on x-rays) in silicone oil base. Releases 65 µg progesterone per day.



Developer: Alza Corp. (US)

Date first marketed: 1976

Distributors: Alza Corporation, US; Polcrome Ltd., UK; Theraplix Divison, Rhone Poulenc Santé, France.

Length: 36 mm **Width:** 32 mm

Strings: Two blue-black

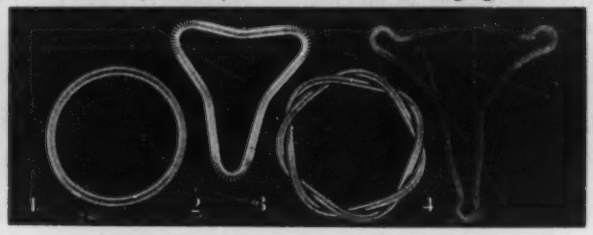
Inserter type and diameter: Withdrawal; 8 mm

Approved lifespan: US, one year; France,18 months.

Areas of major use: US, France

Chinese IUDs

Description: The most widely used IUD in China is the stringless single-coil stainless steel ring (1). The newly developed uterine cavity shaped steel ring is becoming widely used (2). It is replacing the Mahua ring, a double-coil stainless steel ring (3). Much less commonly used is the Shanghai V-200, made of silicone plastic on a wire frame with 200 mm^2 copper wire (4).



Size: The single-coil ring and the Mahua ring are produced in seven sizes ranging from 18 to 24 mm in diameter.

Strings: None on rings or on uterine-shaped device. Two black threads on Shanghai V-200.

Inserter type: Stainless steel rod with notch in tip to hold coil

dose—and would be offset by reduced expenses for clinic visits and treating infections. Along with antibiotics, meticulous aseptic technique during insertion can reduce risks of infection (see box, p. 10).

IUDs without strings have also been considered. Findings on IUDs without strings have been mixed, however. On one hand, two laboratory studies of IUDs removed from women reported more bacterial colonization on IUDs with monofilament strings than on IUDs without strings (350, 434). On the other hand, only one (92) of six studies comparing women using IUDs with and without monofilament strings has reported a difference in rates of infection (38, 68, 92, 114, 210, 428). Family Health International is conducting a 5-center randomized study of TCu-200 IUDs with and without strings. Preliminary results show no difference in infection rates (48, 114, 425).

Organon International, manufacturer of the Multiload IUD, has tested coating the MLCu-250 in chlorhexidine acetate, an antiseptic. This does not appear to prevent introduction of microorganisms into the uterus at insertion, however (85).

IUDs Do Not Prevent AIDS

In contrast to condoms, IUDs provide no protection against AIDS. AIDS—acquired immune deficiency syndrome—is a new and fatal disease that has no cure. It is caused by the human immunodeficiency virus (HIV). No vaccine against this virus has been developed. HIV is found in semen as well as blood. Thus condoms, which prevent semen from entering the vagina, and possibly spermicides, which can kill HIV, can protect against AIDS. Other family planning methods cannot.

To protect against AIDS, all women who are not sure whether they or their partners are infected should use condoms and spermicides during every act of sexual intercourse, just as they would use them to prevent pregnancy. (See **Population Reports**, *AIDS—A Public Health Crisis*, L-6, July-August 1986.) If a woman's partner will not use a condom, she should at least use a spermicide. Any couple living in an area where AIDS or HIV infection has been found and whose sexual relationship has not been a long-term, mutually faithful one is at risk of AIDS. Women who have more than one sexual partner or whose partners have more than one partner are not the best candidates for IUDs in any case. Nonetheless, any such woman using another effective method of family planning to prevent pregnancy should be encouraged to continue it even while she uses condoms and spermicides to prevent AIDS (231). Preventing pregnancy is especially important if a woman or her partner is likely to be infected because HIV can spread from a woman to her fetus during pregnancy.

There has been no research to indicate whether IUDs increase or decrease the chances of HIV transmission or whether IUDs pose any special risk to a woman infected with HIV. Studies to address these questions are planned (140, 438).

There are no reports that HIV has been transmitted to a woman during IUD insertion or that a health care provider has been infected with HIV while inserting an IUD in an infected woman. Still, it is theoretically possible that transmission could occur.

The same clinic procedures that protect both clients and health care providers against other infections can also protect them against HIV infection. To avoid any risk of infecting a client during IUD insertion, providers should see that all instruments are properly disinfected before each use (see box, p. 10). To avoid any risk of transmission from a client to a health care provider, standard procedures for preventing blood-borne diseases such as hepatitis B should be followed. Providers should:

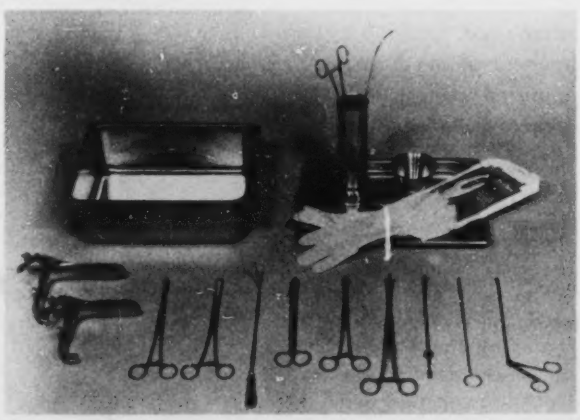
- Wear gloves when they might come in contact with blood, body fluids, or mucous membranes;
- Change gloves after each client;
- Wash hands immediately and thoroughly after any direct contact with blood, body fluids, or mucous membranes;
- Take care to avoid pricking or cutting themselves with a syringe or other instrument that might have blood or body fluid on it; and
- Clean up blood spills with disinfectant immediately (396, 435).

DISTRIBUTION AND USE

Nearly 85 million women worldwide are using IUDs, according to estimates based on survey results and service statistics (see Tables 2 and 3). About 70 percent of the world's IUD users, or 59 million women, are in China. In most countries that have conducted more than one representative sample survey of contraceptive prevalence, IUD use has remained stable or increased since the 1970s. Where voluntary sterilization and injectable contraceptives are available, however, use of these methods has usually grown faster than IUD use (391).

Asia and the Pacific

The highest prevalence of IUD use is in China. Almost 30 percent of married women of reproductive age use IUDs (67). IUDs are a favored contraceptive method as part of China's one-child campaign. Couples are thought to be more willing to have only one child if they can use a reversible method, such as the IUD, rather than voluntary sterilization (468). IUD use has declined recently in China, however—from 35 percent in 1982 to just under 30 percent in 1986. Use of male or female voluntary sterilization increased from 25 to 36 percent and is now the predominant method of contraception (66, 67). IUDs are also widely used in several other Asian countries including Taiwan and Indonesia (see Table 3). In Viet Nam and North Korea IUDs are reportedly the leading method of contraception (112, 392, 393). In India IUD use is slight but has increased since 1981 due in part to the government's increased emphasis on reversible contraceptive methods. According to 1985 government estimates based on service statistics, about 4 percent of Indian married women of reproductive age use IUDs (37).



The IUD backup kit provided by the United States Agency for International Development and cooperating agencies contains all the instruments and equipment needed to insert and remove IUDs.

In Bangladesh, Hong Kong, South Korea, Sri Lanka, Taiwan, and Thailand, while overall contraceptive prevalence has increased since the 1970s or early 1980s, the percentage of women using the IUD has declined or remained the same. More use of voluntary sterilization and, to a lesser degree, injectable contraceptives accounts for most of the increase in overall use (49, 101, 175, 197, 220, 354, 394).

Latin America and the Caribbean

In many Latin American and Caribbean countries—Colombia, Costa Rica, Ecuador, Guatamala, Honduras, Mexico, Panama, Paraguay, and Peru—IUD use has increased slightly over the last decade (44, 77, 75, 129, 151, 220, 466, 467). Only in Bolivia, Chile, and Peru, however, are IUDs the most widely used modern method (65, 220, 467). In most Latin American and Caribbean countries voluntary sterilization and oral contraceptives are more commonly used than IUDs. Chile may have the highest level of IUD use in the region. In a 1976 survey 20 percent of married women of reproductive age used IUDs, and use has reportedly increased since. In 1986 an estimated 77 percent of contraceptors were using IUDs (83). IUDs may be widely used partly because voluntary sterilization is not available to most couples in Chile (65, 163, 306). It is illegal except for therapeutic reasons. In Brazil the situation is reversed. Although voluntary sterilization is likewise illegal except for therapeutic reasons, in fact it is widely used—by 28 percent of couples. The prevalence of IUD use in Brazil, at one percent, is among the lowest in the region (306, 345). Until the mid-1980s Brazil prohibited making or importing IUDs (319).

Table 2. Estimated Number of IUD Users Worldwide, 1987

Region & Country	% of MWRA* Using IUDs	No. of Women (in 1,000s)
AFRICA	0.7	500
ASIA & PACIFIC		
China	29.3	59,000
Indian subcontinent	2.4	4,200
Other Asia & Pacific	7.1	5,800
All Asia & Pacific	14.9	69,000
LATIN AMERICA & CARIBBEAN		
Brazil	1.0	200
Other	6.0	2,100
All	4.1	2,300
NEAR EAST & NORTH AFRICA	5.0	1,600
DEVELOPED		
Scandinavia	21.0	600
Other Europe	7.5	7,900
US & Canada	5.0	1,800
Australia & New Zealand	5.0	150
Japan	4.0	700
All	6.7	11,150
TOTALS		
Developing countries except China	2.7	14,400
Developed countries	6.7	11,150
World, except China	3.8	25,550
China	29.3	59,000
World	10.3	84,550

*Married women of reproductive age

Sources: World Fertility Surveys, Contraceptive Prevalence Surveys, Demographic and Health Surveys, other national surveys, and service statistics, extrapolated to population estimates from Population Reference Bureau (143, 205) and Nortman (259)

Table 3. Percentage of Married Women, Age 15–44, Using IUDs, as Reported in Selected Sample Surveys,* 1977–1987

Region/ Country	Ref. No.	Date of Survey	% Using Any Method[a]	% Using IUD	% of Contraceptors Using IUDs
AFRICA					
Botswana	220	1984	29	5	17
ASIA & PACIFIC					
China	66	1982	69[b]	35[b]	50[b]
Indonesia	157	1985	38[c]	12	31
Korea, Rep. of	394	1982	57	7	12
	197	1985	70	7	11
Taiwan	49	1980	70	NA	32
Thailand	175	1984	65	5	8
LATIN AMERICA & THE CARIBBEAN					
Colombia	220	1978	48	8	16
	75	1986	63[b]	10[b]	16[b]
Costa Rica	220	1978	65	5	7
	77	1986	71[e]	8	12
Ecuador	220	1979	35	5	15
	47	1987	44[b]	10[b]	22[b]
Mexico	220	1979	40	7	16
Montserrat	171	1984	53[a,e]	11[a]	21[d]
Panama	129	1984	59[d]	6	10
Paraguay	466	1987	38[d]	5	14
Peru	467	1986	46[b]	7[b]	16[b]
Venezuela	220	1977	49	9	17
NEAR EAST & NORTH AFRICA					
Egypt	315	1984	30[b]	8[b]	28[b]
Jordan	220	1983	26[e]	9	34
Tunisia	220	1978	32	9	29
	220	1983	42	15	36
Turkey	388	1983	62	9	14
DEVELOPED COUNTRIES					
Austria	245	1978	84	5	6
		1981–82	82	9	11
Belgium (Flemish)	408	1984	79	10	8
Czecho-slovakia	26	1977	95	18	19
Finland	26	1977	80	29	36
Germany, West	87	1985	86	15	17
Hungary	155	1986	73	19	26
Netherlands	404	1982	78[d]	10[d]	13[d]
Norway	26	1977–78	71	28	39
Spain	349	1985	64	7	10
Sweden	365	1980	62	17	27
Switzerland	153	1980	70	11	16
UK (England, Scotland & Wales)	390	1983	83[d]	7[d]	8[d]
US	220, 242	1982–83	68	5	7

*Includes only countries where 5 percent or more of married women of reproductive age used IUDs. All numbers rounded to whole numbers. DEVELOPING COUNTRIES: Among currently married women age 15–45 except: Indonesia 1985, 10–49; Taiwan, percentage using any method is among married women 22–39, percentage of contraceptors using IUDs is among all women 15–39; Turkey, age <50, fecund, nonpregnant. DEVELOPED COUNTRIES: Among currently married, women below age 45, except: Austria, women married 1974–77; Belgium 1984, excludes women who intend to be pregnant within a year; Hungary, age <40, excludes users of voluntary sterilization; Netherlands, women born 1945–64; Spain 1985, age 18–49, excludes users of voluntary sterilization; Sweden, all women age 20–44, excludes users of voluntary sterilization; US, excludes women in Alaska, Hawaii, and institutions.

[a]Includes traditional methods (breastfeeding, douche, abstinence, folk) except where noted

[b]Currently married age 15–49

[c]Not indicated whether traditional methods included

[d]Includes women in union

[e]Excludes traditional methods

Middle East and North Africa

In Egypt, Jordan, Tunisia, and Turkey, IUD use has increased since the 1970s (220, 315, 388). The rise in IUD use explains most of the increase in overall contraceptive prevalence in these countries except in Turkey, where an increase in withdrawal was more important (388). IUDs and oral contraceptives are the most widely used modern methods of contraception. More than one-quarter of contraceptors in Egypt, Jordan, and Tunisia rely on IUDs (see Table 3). Voluntary sterilization is uncommon except in Turkey (220, 239, 315, 388).

Sub-Saharan Africa

In sub-Saharan Africa levels of IUD use are generally the lowest in the world, as are overall contraceptive use rates. In most surveyed countries less than 0.5 percent of married women of reproductive age use IUDs (220, 311). Assessing trends in IUD use in sub-Saharan Africa is difficult because few countries have conducted more than one survey. Family planning program statistics from The Gambia, Mauritius, Mozambique, and Sierra Leone and surveys in Kenya suggest that IUD use in these countries is increasing (180, 259).

Table 4. Deliveries of IUDs by Major Donor Agencies, 1982–1987 (in 1,000s)

Recipient Region & Donor	1984	1985	1986	1987
AFRICA				
US AID	290	216	179	117
IPPF	22	47	68	32
UNFPA	218	16	55	72
FPIA	103	105	85	61
Pathfinder*	7	9	17	43
WHO	NA	—	—	15
Subtotal	640	393	404	340
ASIA & PACIFIC				
US AID	318	1,670	1,286	545
IPPF	23	5	62	72
UNFPA	5,565	20	4,270	6,133
FPIA	158	810	144	56
Pathfinder*	4	0	0	0
WHO	NA	1,350	1,200	391
Subtotal	6,068	3,855	6,962	7,197
LATIN AMERICA & CARIBBEAN				
US AID	1,074	3,165	2,199	1,383
IPPF	126	143	151	3
UNFPA	101	18	30	42
FPIA	143	92	503	317
Pathfinder*	59	63	105	54
PAHO	141	723	84	77
Subtotal	1644	4,204	3,072	1,876
NEAR EAST & NORTH AFRICA				
US AID	503	50	489	685
IPPF	34	10	32	26
UNFPA	39	45	51	2
FPIA	343	238	163	199
Pathfinder*	<1	<1	15	4
Subtotal	919	343	750	916
AGENCY TOTALS				
US AID	2,184	5,101	4,154	2,730
IPPF	204	206	313	132
UNFPA	5,926	100	4,406	6,249
FPIA	747	1,245	894	632
Pathfinder*	70	73	136	101
WHO	NA	1,350	1,200	406
PAHO	141	723	84	77
Total	9,270	8,797	11,187	10,326

Note: Excludes small quantities sent to Europe by WHO and UNFPA or sent as samples or for research. Quantities listed for FPIA, IPPF, and Pathfinder include only IUDs purchased with non-US AID funds. IUDs purchased by US AID and shipped by FPIA, IPPF (which received US AID supplies through 1985), and Pathfinder are included with US AID deliveries.

*For fiscal years, July 1-June 30

Sources: US Agency for International Development (US AID) (29), International Planned Parenthood Federation (IPPF) (110, 166), United Nations Fund for Population Activities (UNFPA) (417), Family Planning International Assistance (FPIA) (278), Pathfinder Fund (Pathfinder) (189), World Health Organization (WHO) (256), Pan American Health Organization (PAHO) (347)

Developed Countries

IUDs are most widely used in Scandinavia, France, and some Eastern European countries. In France, Hungary, Norway, and Finland, about one-quarter or more of married women of reproductive age rely on IUDs (297) (see Table 3). Use is lower in Canada, the US, Australia, New Zealand, and Japan, however, where only about 5 percent or less of married women of reproductive age use IUDs (43, 187, 192, 220, 242, 324, 325). IUD use has leveled off or declined in the US, the UK, and many other developed countries (181, 242, 263, 295, 324, 325, 390). This is partly because voluntary sterilization has become widely available and popular among older women (52, 182, 242, 324, 390). Also, publicity surrounding the withdrawal of the Dalkon Shield from the market and subsequent lawsuits in the US have deterred some women from using any IUD and have made doctors more cautious about offering IUDs to younger women (156, 368).

Donor Agency Supplies

Major donor agencies, particularly the United States Agency for International Development (US AID) and the United Nations Population Fund (UNFPA), supply most of the IUDs used in developing countries other than China. In 1987 donor agencies distributed more than 10 million IUDs to about 75 countries. India has received the largest share of IUD donations in recent years—some 6 million in 1987. In Asia, Bangladesh and Viet Nam also have been major recipients. Elsewhere, major recipients have been Mexico and Colombia in Latin America; Turkey and Egypt in North Africa and the Near East; and Kenya in sub-Saharan Africa.

Donor agencies have shifted away from the Lippes Loop and other unmedicated devices since the early 1980s and now supply mostly copper IUDs. For most recipients there has also been a marked shift from the TCu-200 to the TCu-380A. In 1987 US AID began supplying only the TCu-380A—a decision based on its greater effectiveness (401). A major exception has been India, which has requested the TCu-200.

Through agreements between The Population Council, which licenses the copper T IUDs, and the manufacturers, these IUDs are available at special low prices to government and nonprofit family planning programs. The cost of IUDs purchased in large quantities by US AID or other public sector organizations is at most $0.30 (US) for the Lippes Loop, $0.75 for the TCu-200, and $1.00 for the TCu-380A (36, 321, 417). Assuming that these IUDs are used for at least one year, the annual cost compares favorably with the annual cost to donors for many other contraceptive methods: about $1.80 for combined estrogen-progestin oral contraceptives; $4.00 for depot medroxyprogesterone acetate (DMPA) injectable; and $2.80 for Norplant. At $0.45, however, the cost for a one-year supply of 100 condoms is less (217, 321).

IUD Manufacturing

IUDs are made in the US, Canada, Brazil, China, Indonesia, Mexico, Viet Nam, and several European countries. Generally, copper T IUDs are manufactured under license from the

Population Council. The licensees are commercial firms except in China and Indonesia, where they are governmental organizations (282). In China, where stainless steel rings and other unmedicated IUDs have been produced for many years, production of the TCu-220C began in 1983. One factory manufactured more than 2 million in 1987. A second factory is scheduled to open in late 1988 (240, 469). In Indonesia manufacturing of the TCu-380A began in 1987 and the MLCu-250 is currently in trial production. Lippes Loops have been produced in Indonesia since 1975, and current production meets in-country demand (310, 362). In Brazil the MLCu-250, TCu-200B, and TCu-380A are made. Most of the copper Ts are exported to other Latin American countries and to Asia and Africa. The MLCu-250s are for local use (80, 238). In Mexico the TCu-220C has been manufactured for local use since 1974 (309).

IUDS IN FAMILY PLANNING PROGRAMS

The safety, effectiveness, and acceptability of the currently available IUDs depend partly on the device itself but even more on the quality of IUD services. For the best outcome, family planning programs must provide:

- Careful selection of users,
- Informative and empathetic counseling,
- Practical clinical training for health care providers, and
- Regular follow-up care and back-up medical care in case of complications.

Family planning programs should offer IUDs along with other methods of contraception. Then clients can choose the method that best suits them.

Screening Potential IUD Users

The IUD is a safe and effective contraceptive method for many women. Like any other method, however, it is better suited for some women than others.

Health care providers must be familiar with all relative and absolute contraindications to IUD use (see box, p. 24). To identify medical contraindications, the health care provider should take a medical history, perform a pelvic exam, check for signs of anemia, and, where possible, do lab tests for sexually transmitted diseases. If lab tests are not available or if it is not feasible to wait for test results, at a minimum all clients should be carefully evaluated for clinical signs of sexually transmitted diseases (395, 398) (see box, p. 23). As part of the counseling process (see below), the health care provider also should ask whether the woman plans to have children in the future and whether she and her partner have a mutually faithful sexual relationship. In areas where sexually transmitted diseases are common, health care providers should be especially cautious in screening clients.

Counseling

Counseling is an essential part of every family planning provider's role. Informative and empathetic counseling helps clients make the best choice of a contraceptive method and helps them use the method safely, effectively, and with satisfaction (see **Population Reports**, *Counseling Makes A Difference*, J-35, November 1987).

There are six elements to family planning counseling (see **Population Reports**, *Counseling Guide*, J-36, December 1987). The provider can remember the steps using the English word "GATHER."

"GATHER"

G—Greet clients. The provider should greet clients politely and give them full attention.

A—Ask clients about themselves. The provider should ask clients about their family planning needs and obtain background information and a brief medical history.

T—Tell clients about family planning methods. The provider should list the available family planning methods and clearly describe those that interest the client—how they work, advantages and disadvantages, and possible side effects. Even clients who immediately express a preference for the IUD need to know what other methods are available.

H—Help clients choose a method. Some women may have already decided that they want an IUD. Others may want advice and guidance from the provider. In either case the provider should help the woman decide on a safe method that suits her needs and plans. If the method is contraindicated, the provider should explain why and help the client select another method. If there are relative contraindications, the provider and client should compare the risks and benefits of the IUD and of other contraceptive methods. The effectiveness of various methods should be discussed in light of the risks and problems of an unintended pregnancy. The final decision to use an IUD—or any other method—must be an informed choice by the client.

E—Explain how to use the IUD. Once a woman decides to use an IUD, the provider should explain:

- When, where, and how it will be inserted,
- The common side effects,
- The slight chance of more serious complications, expulsion, or unintended pregnancy,
- The warning signs of serious complications.

Women who understand that mild cramping and bleeding in the days following insertion and heavier menstrual periods while using an IUD are common and usually harmless will be less likely to have their IUDs removed unnecessarily (184, 353). A study in Sri Lanka, for example, found that women who were counseled by specially trained midwives and satisfied IUD users had side effects similar to those among women who received no special counseling. Nevertheless, the women who received special counseling kept their IUDs longer (353).

It is helpful for the provider to use a checklist of important points the IUD user needs to know. The checklist helps make sure that no important information is left out (see box, p. 25). To help the client understand and remember the most important points, the provider should explain them clearly and simply and go over them several times. It is also helpful to give clients printed material to take home, including a card with the name and picture of the IUD, noting the date of insertion and time for removal (398) (see p. 24). She should also be told if and how she will be notified when it is time for the IUD to be replaced. Of course, the family planning program should keep records for each IUD user showing the type of IUD and when it was inserted. These records should be used to answer questions from women who have forgotten when to have their IUDs replaced and to follow up users when the time for replacement approaches.

R—Return for follow-up. When a woman has an IUD inserted, she and the provider should plan for a follow-up visit within three months. She should understand, however, that she can return at any time if she has questions or problems or wants

Research on New IUDs

Researchers are seeking to develop new IUDs that are as effective as current IUDs but have lower rates of expulsion and side effects. Several approaches are being considered.

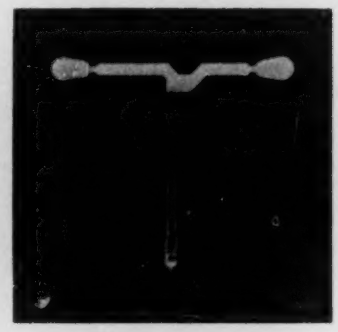
Modified and New Copper and Unmedicated IUDs

Two modified versions of the MLCu-375, called the Multiload Mark II (see photo) and the MLCu-375 SL, are in clinical trials. The Mark II is designed to reduce problems with insertion and removal. Unlike other Multiload devices, which are inserted with both arms outside the inserter tube, the Mark II is inserted entirely through an inserter tube. Also, the arms of the Mark II are shorter and more flexible. The MLCu-375 SL has a shorter vertical stem. It is intended for the woman with a short uterus, as well as for the woman with average uterine length. The MLCu-375 SL is marketed in Finland (79, 411).

Multiload Mark II

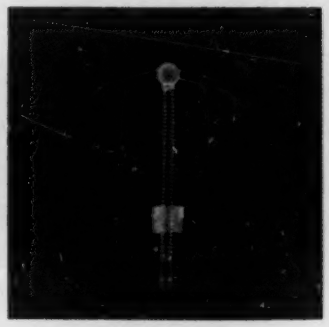
Several modifications of copper T IUDs are being studied. In China researchers have developed a smaller TCu-220C because they think that the standard TCu-220C is too large for Chinese women. Both the stem and horizontal arms of the T are shorter, and the stem holds a total of 188 mm^2 of copper in four rather than five copper sleeves. Hence the IUD is called the TCu-188. Clinical trials are underway involving about 1,000 women in seven clinics (25).

Researchers in Switzerland are testing a copper T that has a soft silastic ball at the tip of each arm, designed to block the openings to the fallopian tubes. This design is intended to minimize the risk of ectopic pregnancy and perforation (88). The developers call it the uterine-occluding device (see photo).



Uterine-Occluding Device

Two new copper devices, the Ombrelle and the Fincoid-350, are being studied in Europe. Both are designed to be flexible and to move toward the uterine fundus when the uterus contracts. This is intended to reduce expulsion and minimize bleeding and pain (150, 158, 406). Preliminary trials have found low rates of pregnancy, expulsion, and removal for bleeding and pain (14, 16, 406). A multicenter randomized trial comparing the Ombrelle-380 and the Nova T is underway (406). The Ombrelle-250 has been marketed in France since 1986 (14) (see photo). The only randomized trial to date of the Fincoid-350 found rates of expulsion and removal for bleeding and pain no lower than with the MLCu-375 and the Nova T (314) (see Table 1).



Ombrelle 250

A "uterine-shaped" IUD made of a single coil of stainless steel has been developed and is being used in China (see photo, p. 17). The shape is intended to minimize expulsions. An ongoing study found one-year expulsion and pregnancy rates lower than with the standard Chinese stainless steel ring. A version with copper bands inside the coil is now being tested (25).

Hormone-Releasing IUDs

The Population Council and Leiras Medica in Finland have been testing IUDs that release levonorgestrel, a synthetic hormone of the progestin family. The IUD, called the LNG-20, contains 46 to 60 mg of levonorgestrel and releases it at a rate of 20 µg per day. Extensive trials show very low pregnancy rates—less than 0.5 per 100 women after one year of use (224, 280, 335). The rate of discontinuation for bleeding problems is higher than with other IUDs, however, because about 25 percent of users develop amenorrhea or very scanty bleeding (335). The LNG-20 IUD is currently being redesigned because one component of the steroid reservoir is no longer available.

Frameless IUDs

Two IUDs without rigid frames are being tested in several countries (407, 412). The CuFix-360 consists of six copper sleeves—a total of 360 mm^2 copper—strung on a surgical nylon (polypropylene) thread knotted at one end (374). During insertion the knot is pushed into the muscle of the fundus with a needle inserter. Preliminary tests in Belgium found no pregnancies in over 700 women during the first 12 months. Rates of expulsion and of removals for pain and bleeding were 0.8 and 1.3 per 100 women, respectively (407).

The Fundus Fixing Reversible Sterilization is described by its developers not as an IUD but as reversible sterilization with a uterine implant (221). It has a design like that of the CuFix-360. Instead of copper sleeves, however, it carries 400 mm^2 copper wire coiled around two nylon threads. The device is attached to the fundal wall with a miniature stainless steel spring fastener like those used with cardiac pacemakers. The device is removed by unscrewing the fastener. It does not have a string. Clinical trials are underway in Egypt, Tunisia, and the Netherlands (412).

the IUD removed (319, 398). Also, she should return as soon as possible if she notices any warning signs (see box, p. 25).

The purpose of routine follow-up visits is to:

- Reassure the client about any common side effects and address any other concerns or questions;
- Check that the IUD is in place;
- Diagnose any complications and start treatment;
- Remind women of the warning signs of IUD complications.

At each follow-up visit the provider should take a clinical history, paying special attention to menstrual problems, pain, and possible pregnancy or expulsion. A pelvic examination should be performed not only to check for the IUD strings but also to look for signs of pelvic infection (7, 82, 436).

Especially where regular follow-up is not feasible, the provider should be sure that the woman knows when and where to seek medical care (164). Also, community health workers can visit women at home and refer them to more skilled health workers if necessary (436).

To handle serious complications, programs should make arrangements with a referral medical center. The center should be staffed with surgeons and gynecologists and have facilities for diagnostic and surgical procedures (436).

Health care providers should remove copper IUDs every three to five years, depending on the approved lifespan (see box, p. 6). If a woman is having no problems, the Lippes Loop and other nonmedicated IUDs do not need to be removed until menopause (7, 162). After menopause removal may be difficult because the uterus shrinks and narrows (179). Of course, removal should be available promptly whenever a woman requests it and whatever her reason.

When the TCu-380A is being introduced, women using a different IUD may want to replace it with the new IUD. Because most IUD complications and pregnancies are most common just after insertion, changing IUDs unnecessarily should be discouraged. A woman should be encouraged to wait and get a TCu-380A when her current IUD reaches the end of its approved lifespan or if her current IUD must be removed for other reasons.

Training for Health Workers

Safe and effective IUD use requires competent and well-trained health care providers. To be effective, training must include practical experience in performing pelvic exams, IUD insertions, and removals (319, 436). The World Health Organization (WHO) advises that most trainees need to perform at least 50 to 60 pelvic examinations and 10 to 15 IUD insertions under supervision before they have the skill and self-confidence to practice alone (126). The program should be flexible, however, to allow for as many insertions as needed. Training should also emphasize the management of side effects. Practical training should be done in small groups to assure adequate supervision (126, 287). When health care providers return to their jobs, they need to continue inserting and removing IUDs regularly in order to keep up their skills (287, 319). The TCu-380A is inserted just like the TCu-200. Thus no additional training should be needed for health care providers experienced with the TCu-200. Providers who have inserted only Lippes Loops may need instructions on how to insert the TCu-380A.

Special training is needed for postpartum IUD insertion. IUDs are usually inserted with ring forceps or by hand rather than with the standard inserter (71). In the Mexican social security system, Instituto Mexicano del Seguro Social, delivery room staff are trained to insert IUDs, and women are counseled during prenatal care about postpartum contraceptive options. IUDs are the most popular method of postpartum contraception in Mexico (99).

Thorough training in IUD insertion along with careful counseling and follow-up lead to longer IUD use. In areas of Sri Lanka where doctors and public health midwives received refresher training that emphasized insertion technique, counseling, and follow-up, rates of discontinuation due to expulsion or complications were significantly lower than where there was no special training (107, 353).

Clinical Signs of Genital Infections

An IUD should not be inserted in a woman with certain lower genital tract infections—acute mucopurulent cervicitis (inflammation of the cervix with pus and mucus discharge), gonorrhea, chlamydia, and, some suggest, nonspecific vaginitis (also called bacterial vaginosis) (419, 458). Also, an IUD should not be inserted in a woman with suspected pelvic inflammatory disease (126, 398, 419, 437). All potential IUD users should be screened for at least the clinical signs and symptoms of these infections. Where laboratory facilities are available, women may also be given lab tests. Since gonorrhea and chlamydial infection are often asymptomatic in women, family planning providers should also ask a woman if her sexual partner has symptoms. The common clinical signs and symptoms of these infections include:

Signs and Symptoms in Women

Lower Genital Tract Infections:

- Discharge (from the cervix or urethra) containing pus and mucus
- Difficult or painful (burning) urination

Pelvic Inflammatory Disease:

- Lower abdominal or pelvic pain
- Painful sexual intercourse, sometimes with bleeding
- Heavy or painful menstruation
- Bleeding between menstrual periods
- Pain on manipulation of the uterus or cervix during pelvic exam
- Body temperature of 38°C (100°F) or higher
- Tenderness or swelling in the area of either fallopian tube or ovary

Signs and Symptoms in Men

Gonorrhea, Chlamydial or Other Infection:

- Discharge from the penis containing pus and/or mucus
- Painful (burning) urination

Sources: Hatcher et al. (142), US CDC (395, 398, 399)

Choosing an IUD

Family planning providers can use the following checklists to help clients decide whether the IUD is the right method for them.

The IUD may be an *appropriate method* for a woman with one or more of these characteristics:

- ❑ Has trouble using barrier methods or remembering to take a pill every day and wants a method with no bother
- ❑ Does not want more children
- ❑ Already has children and does not want another soon
- ❑ Is in a long-lasting, mutually faithful sexual relationship
- ❑ Cannot use hormonal methods because she has high blood pressure, diabetes, or severe headaches
- ❑ Smokes cigarettes
- ❑ Has successfully used an IUD in the past
- ❑ Is breastfeeding

The IUD *should not be the first choice* for a woman with any of these relative contraindications:

- ❑ Has painful or long menstrual periods
- ❑ Is not in a long-lasting, mutually faithful sexual relationship
- ❑ Wants children but has none
- ❑ Has had an ectopic pregnancy
- ❑ Is very anemic
- ❑ Has medical conditions that make an internal infection especially risky: rheumatic heart disease or treatment with steroids or other drugs that suppress the immune system
- ❑ Has fibroids or other conditions that change the shape of the uterus or cervix
- ❑ Has had repeated genital infections

The IUD *should not be used* by a woman with any of these absolute contraindications:

- ❑ Has an active or recent genital infection (gonorrhea, chlamydial infection, mucopurulent cervicitis, pelvic inflammatory disease)
- ❑ Has had pelvic inflammatory disease more than once*
- ❑ May be pregnant
- ❑ Has abnormal vaginal bleeding, abnormal cervical smear, or other signs of genital cancer

*If the client really wants an IUD, her case can be individually evaluated based on factors such as how recently she had PID.

Sources: **Population Reports**, *Counseling Guide*, J-36, December 1987. Also, ACOG (7), Burnhill (42), Hutchings et al. (156), Snowden (341), Tatum & Connell (368), WHO (437)

Front

YOUR IUD IS A

TCu-380A

User's Name: _____

Please come for your next visit on: _____/ _____/ _____/ _____/ _____

Friendly Family Planning Clinic

Date IUD inserted: _____

Return for IUD removal on: _____

Yourtown, Anywhere

Telephone: 99-0000

Open Monday-Friday, 9-12 a.m.; 4-7 p.m.

Saturday, 9-12 a.m.

Back

WARNING SIGNS FOR IUD USERS

You should see a health worker immediately if you have:

P – Period late (pregnancy), abnormal spotting or bleeding

A – Abdominal pain, pain with intercourse

I – Infection (such as gonorrhea), abnormal discharge

N – Not feeling well, fever, chills

S – Strings missing, shorter or longer

Prototype Information Card for the IUD User

The role of nurses, midwives, and paramedics. In the US, Sweden, China, Chile, Ecuador, Thailand, Turkey, Ghana, Nigeria, and many other countries, nurses, midwives, or paramedical workers routinely insert IUDs (51, 203, 268, 270, 351, 429, 436, 448). Studies in a number of countries have found that with appropriate training these health care personnel provide safe and effective IUD services (18, 35, 268, 293, 313, 353, 436, 439, 448). A WHO study in the Philippines and Turkey, for example, found that assistant nurse-midwives and doctors were equally able to identify contraindications to and complications of IUD use. Furthermore, rates of expulsion, pregnancy, medical removal, and continuation were similar in the two groups of clients (439). A recent Brazilian study also found no significant differences in complication or continuation rates between women randomly assigned for IUD insertion to a doctor or to a nurse (35).Where nurses, midwives, or paramedical workers provide IUD services, doctors should be readily available for supervision, consultation, and, when necessary, diagnosis and treatment of complications.

Community health workers, traditional midwives, and other briefly trained health workers also can play an important role in IUD services. With appropriate training they can tell women about IUDs and other methods and help in counseling about routine side effects, detecting complications, and referring women for medical care when necessary (125, 436). Satisfied IUD users can also be helpful in spreading the word about IUDs. In Sri Lanka where midwives were teamed with satisfied IUD users, they recruited an average of two-thirds more new clients than midwives alone (107, 353).

Now that long-lasting second-generation copper IUDs are becoming available and research has identified the appropriate users, attention is focusing more on improving the way that programs provide IUDs. As with all family planning methods, it is essential to help the client decide whether the IUD suits her needs or, if the IUD is not medically appropriate, to encourage her to choose another method. At the same time, well-trained providers are needed to insert and remove IUDs properly and to help whenever the user has a problem. When the right women are using IUDs with the right program support, the result is effective, safe contraception and satisfied users.

New Sources of Information About IUDs

IUDs: Guidelines for Informed Decision-Making and Use, developed jointly by the US Centers for Disease Control and the US Agency for International Development, is intended to help policy-makers and program directors plan training and information activities (398).

The booklet in English is available free of charge from: Research Division, Office of Population, US Agency for International Development, Washington, D.C. 20523, USA. A Spanish translation is available from: Development Associates, 2924 Columbia Pike, Arlington, Virginia 22204, USA. A French translation is available from: Ronco Consulting Corporation, 1821 Chapel Hill Road, Durham, North Carolina 27707, USA.

Mechanism of Action, Safety, and Efficacy of Intrauterine Devices, World Health Organization (WHO) Technical Report Number 753, is a comprehensive and up-to-date review of the scientific evidence about IUDs. It is available from WHO representatives or appointed booksellers in many countries or from: WHO, Distribution and Sales Service, 1211 Geneva 27, Switzerland. The cost is 12 Swiss francs. Reduced prices are available for purchasers from developing countries (437).

Ten Important Points to Tell the IUD User

Counseling women about common side effects and problems with IUDs and the warning signs of severe complications promotes safe, effective, and continued use. In particular, the user know and be able to repeat the first two points. The provider should tell the IUD user:

1. That she should **see a health care provider immediately** at the first sign of pregnancy or of pelvic infection. The word "**PAINS**" can help the IUD user remember the warning signs of pregnancy or pelvic infection.

   P –Period late (pregnancy), abnormal spotting or bleeding

   A –Abdominal pain, pain with intercourse

   I –Infection (such as gonorrhea), abnormal discharge

   N–Not feeling well, fever, chills

   S –Strings missing, shorter or longer
2. She should **come back** to see the provider in about three months for a check-up, even if she does not have any problems. The provider should make an appointment for this follow-up visit.
3. **Menstrual periods will probably be heavier and last longer.** This is usually not harmful. She should see a provider, however, if the bleeding lasts twice as long as her normal menstrual period or if she has to use twice as many pads.
4. What kind of IUD she has and **when it needs to be replaced**. The provider should give her a card showing this information (see figure, p. 24).
5. An IUD offers **no protection against sexually transmitted diseases, including AIDS**. If she does not have a long-term, mutually faithful sexual relationship, she should use condoms to protect herself against sexually transmitted diseases. Using spermicides is not as good as using condoms, but it is better than nothing. Using a condom and spermicide together probably offers the best protection.
6. **She should check the strings** at least during the first three months after insertion, preferably just after each menstruation.
7. **If she gets pregnant, the IUD has to be removed** as soon as possible.
8. **Only a trained health worker should treat problems** with the IUD or remove it.
9. **She can have the IUD removed at any time** for any reason and choose another contraceptive method.
10. **She can have sex as usual**. If the strings bother her husband, they can be cut shorter at the clinic.

Sources: **Population Reports**, *Counseling Guide*, J-36, December 1987; Burnhill (42); Hatcher et al. (142); Tatum & Connell (368); US DHHS (398); WHO (437)

BIBLIOGRAPHY

An asterisk (*) denotes an item that was particularly useful in the preparation of this issue of **Population Reports**.

1. ANONYMOUS. FDA investigating IUDs after deaths reported. FDA Drug Bulletin 4(2): 10. 1974.

2. ACADEMIA NACIONAL DE MEDICINA (ANM). Respuestas de la Academia Nacional de Medicina al Ministerio de Salud sobre "dispositivos intrauterinos." [Responses of the National Academy of Medicine to the Ministry of Health on "Intrauterine Devices."][SPA] Bogotá, Colombia, ANM, Sep. 1986. 1 p.

3. ALAN GUTTMACHER INSTITUTE (AGI). Risky business: an overview of the crisis in liability insurance. Washington, D.C., AGI, Dec. 1986. 37 p.

4. ALVIOR, G.T., Jr. Pregnancy outcome with removal of intrauterine device. Obstetrics and Gynaecology 41(6): 894–896. Jun. 1973.

5. ALZA CORPORATION (AC). The Progestasert: intrauterine progesterone contraceptive system: release rated 65 µg/day progesterone for one year. Palo Alto, California, AC, 1976. 61 p.

6. AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS (ACOG). ACOG's statement on Searle's removal of IUDs. Washington, D.C., ACOG, Jan. 31, 1986. 1 p. (Mimeo)

7. AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS (ACOG). The intrauterine device. ACOG Technical Bulletin No. 104, May 1987. 5 p.

8. AMERICAN PUBLIC HEALTH ASSOCIATION. APHA passes 22 new policies; calls for death penalty ban, opposes Contra aid. The Nation's Health 16(10–11): 7. Oct.-Nov. 1986.

9. ANDOLSEK, L., TEETER, R.A., KOZUH-NOVAK, M., WHEELER, R., FORTNEY, J.A., and ROSENBERG, M.J. Time to conception after IUD removal: importance of duration of use, IUD type, pelvic inflammatory disease and age. International Journal of Gynaecology and Obstetrics 24(3): 217–223. Jun. 1986.

* 10. ANDRADE, A.T.L. and PIZARRO, E.P. Quantitative studies on menstrual blood loss in IUD users. Contraception 36(1): 129–144. Jul. 1987.

11. ANN, T.B. and SIM, C.C. Knowledge and use of contraception. [Draft] Kuala Lumpur, Malaysia, National Population and Family Development Board. 1987. 32 p.

12. AREF, I., HEFNAWI, F., KANDIL, O., YACOUT, M., and SAID, E. Effect of ML Cu250 IUD on menstrual blood loss and sperm migration. In: Hafez, E.S.E. and Van Os, W.A.A., eds. Medicated IUDs and polymeric delivery systems. Detroit, Hafez and Van Os, 1979. p. 22A–22B.

13. ASOCIACION DEMOGRAFICA SALVADORENA. and INSTITUTE FOR RESOURCE DEVELOPMENT, WESTINGHOUSE. El Salvador National Family Health Survey, 1985. Jan. 1987. 23 p. (Unpublished)

14. AUDEBERT, A.J.M. Follow-up studies of the new IUD "Ombrelle 250." Advances in Contraception 3(3): 192–193. Sep. 1987.

15. AUDEBERT, A.J.M. and EMPERAIRE, J.C. Pelvic and abdominal IUDs: pathophysiology, diagnosis and management. In: Hafez, E.S.E. and Van Os, W.A.A., eds. IUD pathology and management. Boston, G.K. Hall, 1980. (Progress in Contraceptive Delivery Systems Vol. 3) p. 159–168.

16. AUDEBERT, A.J.M., EMPERAIRE, J.C., LARUE-CHARLUS, S., and VAN DER PAS, H. Clinical performance of the Ombrelle 250—a new copper IUD. In: Zatuchni, G.I., Goldsmith, A., and Sciarra, J.J., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 263–265.

17. AZNAR, R., REYNOSO, L., MONTEMAYOR, G., and GINER, J. Post-placental insertion of IUDs. Contraceptive Delivery Systems 1(2): 143–148. Apr. 1980.

18. BAKER, J. Contraceptive safety research in Asia: a literature review. Bangkok, Population Council, Aug. 1983. 113 p.

19. BANHARNSUPAWAT, L. and ROSENFIELD, A.G. Immediate postpartum IUD insertion. Obstetrics and Gynecology 38(2): 276–285. Aug. 1971.

20. BATAR, I. Fertility after IUD removal. In: Hafez, E.S.E. and Van Os, W.A.A., eds. Medicated intrauterine devices: physiological and clinical aspects. The Hague, Netherlands, Martinus Nijhoff, 1980. p. 159–168.

21. BATÁR, I. Clinical experience with the MLCu250 IUD (eight-year results). Advances in Contraception 1(4): 329–335. Dec. 1985.

22. BEERTHUIZEN, R.J.C.M., VAN WIJCK, J.A.M., ESKES, T.K.A.B., VERMEULEN, A.H.M., and VOOIJS, G.P. Pathomorphologic changes in the oviducts in IUD patients. In: Hafez, E.S.E. and Van Os, W.A.A., eds. Medicated IUDs and polymeric delivery systems. Detroit, Hafez and Van Os, 1979. p. 35A–35B.

23. BELHADJ, H., SIVIN, I., DIAZ, S., et. al. Recovery of fertility after use of the levonorgestrel 20 µg/d or Copper T 380 Ag intrauterine device. Contraception 34(3): 261–267. Sep. 1986.

24. BELL, T.A. and HOLMES, K.K. Age-specific risks of syphilis, gonorrhea, and hospitalized pelvic inflammatory disease in sexually experienced U.S. women. Sexually Transmitted Diseases 11(4): 291–295. Oct.-Dec. 1984.

25. BENSON, P. (PATH/PIACT) [Research on new IUDs] Personal communication, Oct. 16, 1987.

26. BERENT, J. Family planning in Europe and USA in the 1970s. Voorburg, Netherlands, International Statistical Institute, Oct. 1982. (World Fertility Survey Comparative Studies No. 20) 33 p.

27. BERNARD, R.P. IUD performance patterns—a 1970 world view. International Journal of Gynecology and Obstetrics 8(6, Pt. 2): 926–940. Nov. 1970.

28. BHATTACHARJEE, P.J., RAO, A.N., and GOWDA, H.B.S. A study of IUD retention in Karnataka. Population Centre Bangalore Newsletter 7(1): 1–7. Jan.-Mar. 1987.

29. BLACKBURN, B. (US Agency for International Development) [US AID IUD supplies, 1984–87] Personal communication, Jun. 1, 1987.

30. BLOUNT, J.H., REYNOLDS, G.H., and RICE, R.J. Pelvic inflammatory disease: incidence and trends in private practice. Morbidity and Mortality Weekly Report 32(4SS): 27SS–34SS. 1983.

31. BLUM, M. and PERY, J. Prevention of iron deficiency anemia in IUD users by prostaglandin synthetase inhibitors. Contraceptive Delivery Systems 5(1): 21–23. Jan. 1984.

32. BOGUE, D.J. and BOGUE, E.J. Comparative birth interval analysis. Chicago, University of Chicago, Community and Family Study Center, 1980. (Family Planning Research and Evaluation Manual No. 15) 129 p.

33. BOOTH, M., BERAL, V.A., and GUILLEBAUD, J. Effect of age on pelvic inflammatory disease in nulliparous women using a Copper 7 intrauterine contraceptive device. British Medical Journal 281(6233): 114. Jul. 12, 1980.

34. BOYD, E.F., Jr. and HOLMSTROM, E.G. Ovulation following therapeutic abortion. American Journal of Obstetrics and Gynecology 113(4): 469–473. Jun. 15, 1972.

35. BRAZIL. CENTRO DE PESQUISAS DE ASSISTÊNCIA INTEGRADA Á MULHER E Á CRIANCA (CPAIMC). IUD insertions by nursing personnel. Rio de Janeiro, CPAIMC, Aug. 1987. 21 p.

36. BRONNENKANT, L.J. (Finishing Enterprises, Inc.) [Lippes Loop specifications, instructions, sales] Personal communication, Sep. 16, 1987.

37. BROWN, G.F., JAIN, A.K., and GILL, J. Analysis of population policies and programs in India. New York, Population Council, Sep. 1987. 125 p.

38. BUCHMAN, M.I. A study of the intrauterine contraceptive device with and without an extracervical appendage or tail. Fertility and Sterility 21(4): 348–355. Apr. 1979.

39. BUDNICK, L.D. and PAKTER, J. Ectopic pregnancy in New York City, 1975–1980. American Journal of Public Health 72(6): 580–584. Jun. 1982.

40. BURKINA FASO. MINISTRY OF HEALTH (MOH). DEPARTMENT OF MATERNAL AND CHILD HEALTH. and COLUMBIA UNIVERSITY. CENTER FOR POPULATION AND FAMILY HEALTH (CPFH). Du projet de recherche operationnelle: consolidation des services de prestation sanitaire en direction de la famille au Burkina Faso. [Final report on operations research project: consolidation of health delivery services for the family in Burkina Faso.][FRE] Ougadougou, Burkina Faso and New York, MOH and CPFH, Dec. 1986. 96 p.

41. BURKMAN, R.T. and WOMEN'S HEALTH STUDY. Association between intrauterine device and pelvic inflammatory disease. Obstetrics and Gynecology 57(3): 269–276. Mar. 1981.

42. BURNHILL, M.S. Intrauterine contraception. In: Corson, S.L., Derman, R.J., and Tyrer, L.B., eds. Fertility control. Boston, Little, Brown and Company, 1985. p. 271–285.

43. CANADA. COMMITTEE ON THE OPERATION OF THE ABORTION LAW. Report of the Committee on the Operation of the Abortion Law. Ottawa, Minister of Supply and Services, Canada, 1977. 474 p.

44. CARRON, J.M., MELIAN, M.M., MONTHEITH, R.S., MORRIS, L., KINCHEN, S., and WARREN, C.W. Family planning survey: Paraguay 1987. Atlanta, Georgia, Centers for Disease Control, Feb. 1988. 121 p.

45. CASTADOT, M.-J., ROBINOWITZ, M., CHERVENAK, F.A., SEDLIS, A., and BORIA, M.C. Recognizing malignancy in intrauterine contraceptive device users. American Journal of Obstetrics and Gynecology 136(7): 966–967. Apr. 1, 1980.

46. CATES, W., Jr., ORY, H.W., ROCHAT, R.W., and TYLER, C.W., Jr. The intrauterine device and deaths from spontaneous abortion. New England Journal of Medicine 295(21): 1155–1159. Nov. 18, 1976.

47. CENTRO DE ESTUDIOS DE POBLACIÓN Y PATERNIDAD RESPONSABLE (CEPAR). and ECUADOR. INSTITUTO NACIONAL DE INVESTIGACIONES NUTRICIONALES Y MEDICO SOCIALES (ININMS). and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Ecuador Encuesta Nacional de Demografia y Salud Familiar. [Ecuador National Survey of Demography and Family Health.][SPA] [Quito], Ecuador, CEPAR and ININMS, and [Columbia, Maryland], IRD/W, 1987. 25 p.

48. CHAMPION, C. (Family Health International) [FHI's IUD research program: ongoing studies and preliminary results] Personal communication, Jun. 1, 1987.

49. CHANG, M.-C., FREEDMAN, R., and SUN, T.-H. Trends in fertility, family size preferences, and family planning practice: Taiwan, 1961–85. Studies in Family Planning 18(6): 320–337. Nov.-Dec. 1987.

50. CHANTLER, E.N. Copper loss from copper IUDs. In: Zatuchni, G.I., Goldsmith, A., Sciarra, J.J., and Osborn, C.K., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 198–210.

51. CHEN, P.C. Birth planning. In: United States. Department of Health and Human Services (DHHS). National Institutes of Health. Rural health in the People's Republic of China: report of a visit by the Rural Health Systems Delegation, Jun. 1978. Washington, D.C., DHHS, 1980. (NIH Pub. No. 81–2124) p. 105–126.

52. CHETWYND, J. and CHAMBERS, H. Contraceptive use and experience amongst a sample of women attending their GP. New Zealand Family Physician 13: 157–160. Spring 1986.

53. CHI, I.-C. IUD use in diabetic or lactating women or women after cesarean delivery—an epidemiologic perspective. In: Advances in Contraceptive Delivery Systems (Monograph 2), 1985. p. 287–297.

54. CHI, I.-C. and KELLY, E. Is lactation a risk factor of IUD- and sterilization-related uterine perforation? A hypothesis. International Journal of Gynaecology and Obstetrics 22(4): 315–317. Aug. 1984.

55. CHI, I.-C., CHAMPION, C.B., and WILKENS, L. Cervical dilation in interval insertion of an IUD: who requires it and does it lead to a high expulsion rate? Contraception 36(4): 403–416. Oct. 1987.

56. CHI, I., FELDBLUM, P.J., and ROGERS, S.M. IUD-related uterine perforation: an epidemiologic analysis of a rare event using an international dataset. Contraceptive Delivery Systems 5: 123–130. 1984.

57. CHI, I.-C., GALICH, L.F., TAUBER, P.F., WILKENS, L.R., WASZAK, C.S., SIEMENS, A.J., and LIPPES, J. Severe pain at interval IUD insertion: a case-control analysis of patient risk factors. Contraception 34(5): 483–495. Nov. 1986.

58. CHI, I.-C., GALICH, L.F., TAUBER, P.F., WILKENS, L.R., WASZAK, C.S., SIEMENS, A.J., and LIPPES, J. Severe pain at interval IUD insertion: a case-control analysis of patient risk factors. Contraception 34(5): 483–495. Nov. 1986.

59. CHI, I.-C., JI, G., SIEMENS, A.J., and WASZAK, C.S. IUD insertion at cesarean section—the Chinese experience. Advances in Contraception 2: 145–153. 1986.

60. CHI, I.-C., WILKENS, L., and ROGERS, S. Expulsions in immediate postpartum insertions of Lippes Loop D and Copper T IUDs and their counterpart Delta devices—an epidemiological analysis. Contraception 32(2): 119–134. Aug. 1985.

61. CHI, I.-C., WILKENS, L.R., and WASZAK, C.S. Difficulty in removal—a neglected IUD-related rare event. In: Advances in Contraceptive Delivery Systems (Monograph 2), 1985. p. 266–274.

62. CHI, I.-C., WILKENS, L.R., SIEMENS, A.J., and LIPPES, J. Syncope and other vasovagal reactions at interval insertion of Lippes Loop D—who is most vulnerable? Contraception 33(2): 179–187. Feb. 1986.

63. CHI, I.-C., WILKENS, L.R., SIEMENS, A.J., and POTTS, M. Rare events occurring at insertion of an intrauterine device—a review of an international experience. Advances in Contraception 3(1): 49–61. Mar. 1987.

64. CHI, I.-C., ZHOU, S.-W., BALOGH, S., and NG, K. Post-cesarean section insertion of intrauterine devices. American Journal of Public Health 74(11): 1281–1282. Nov. 1984.

65. CHILE. MINISTERIO DE SALUD PUBLICO. PROGRAMA DE EXTENSION DE SERVICIOS DE SALUD MATERNO INFANTIL Y BIENESTAR FAMILIAR (PESMIB). Investigaciones en el campo de la salud materno infantil: 25 areas PESMIB 1973–1976: resumen y conclusiones. [Investigations in the field of maternal and child health: 25 areas from the Programa de Extension de Servicios de Salud Materno Infantil y Bienestar Familiar, 1973–1976: summary and conclusions.][SPA] Santiago, Chile, PESMIB, Dec. 1976. p. 3–5, 76–82.

66. CHINA POPULATION INFORMATION CENTRE (CPIC). Analysis on China's National One-per-thousand-population Fertility Sampling Survey. Beijing, China, CPIC, 1984. 182 p.

67. CHINA, GENERAL OFFICE OF THE STATE FAMILY PLANNING COMMISSION. Statistics on population and family planning of China: 1986. 1987. 8 p. (Unpublished)

68. COHEN, J. Comparaison de DIU au cuivre T 200 avec et sans fil. [A comparative study of the Copper T 200 IUD with and without string.][FRE] Fertilité, Contraception, Sexualité 15(12): 1157–1160. Dec. 1987.

69. COLE, L. (Family Health International) [Event rates for postpartum insertion of various IUDs in multicenter study] Personal communication, Jul. 27, 1987.

70. COLE, L.P. and POTTS, D.M. Wider opportunities for IUD insertion. IPPF Medical Bulletin 17(1): 2–3. Feb. 1983.

71. COLE, L.P., EDELMAN, D.A., POTTS, D.M., WHEELER, R.G., and LAUFE, L.E. Postpartum insertion of modified intrauterine devices. Journal of Reproductive Medicine 29(9): 677–682. Sep. 1984.

72. COLE, L.P., MCCANN, M.F., HIGGINS, J.E., and WASZAK, C.S. Effects of breastfeeding on IUD performance. American Journal of Public Health 73(4): 384–388. Apr. 1983.

73. COLE, L.P., POTTS, D.M., ARANDA, C., BEHULOVIC, B., ETMAN, S., MORENO, J., and RANDIC, L. An evaluation of the TCu 380Ag and the Multiload Cu375. Fertility and Sterility 43(2): 214–217. Feb. 1985.

74. COLLINS, J.A., GILLETT, P.G., PERLIN, I.A., EMBIL, J.A.,

ZAYID, I., RICHARDS, G., and KIRK, M.E. Microbiological and histological findings in the fallopian tubes of women using various contraceptive methods. Contraception 30(5): 457–466. Nov. 1984.
75. COLOMBIA. CORPORACIÓN CENTRO REGIONAL DE POBLACIÓN. and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Colombia: Enquesta de Demografia y Salúd 1986, informe preliminar. [Colombia: Demographic and Health Survey 1986, preliminary report.] [SPA] Columbia, Maryland, IRD/W, 1987. 34 p.
76. CONSUMERS UNION. The manufactured crisis: liability-insurance companies have created a crisis and dumped it on you. Consumer Reports, Aug. 1986. p. 544–549.
77. COSTA RICA DEMOGRAPHIC ASSOCIATION (CRDA). and UNITED STATES. CENTERS FOR DISEASE CONTROL (CDC). The Costa Rica Fertility and Health Survey, 1986. [San Jose,] Costa Rica and Atlanta, Georgia, CRDA and CDC, Sep. 1987. 100 p.
• 78. CRAMER, D.W., SCHIFF, I., SCHOENBAUM, S.C., GIBSON, M., BELISLE, S., ALBRECHT, B., STILLMAN, R.J., BERGER, M.J., WILSON, E., STADEL, B.V., and SEIBEL, M. Tubal infertility and the intrauterine device. New England Journal of Medicine 312(15): 941–947. Apr. 11, 1985.
79. CRUESEN, L. (Organon International) [Development of MLCu-375 SL) Personal communication, Dec. 11, 1987.
80. CRUESEN, L. (Organon International) [Multiload production in Brazil] Personal communication, Jan. 15, 1988.
• 81. DALING, J.R., WEISS, N.S., METCH, B.J., CHOW, W.H., SODERSTROM, R.M., MOORE, D.E., SPADONI, L.R., and STADEL, B.V. Primary tubal infertility in relation to the use of an intrauterine device. New England Journal of Medicine 312(15): 937–941. Apr. 11, 1985.
• 82. DELANO, G.E. Intrauterine contraceptive device: clinical manual. [Boston], Pathfinder Fund, [1987]. 26 p.
83. DELGADO, G. (APROFA) [IUD use in Chile] Personal communication, Jul. 17, 1987.
84. DÍAZ, S., PAVEZ, M., CÁRDENAS, H., and CROXATTO, H.B. Recovery of fertility and outcome of planned pregnancies after the removal of Norplant subdermal implants or Copper-T IUDs. Contraception 35(6): 569–579. Jun. 1987.
85. DIEBEN, T. (Organon International) [Research on MLCu-250 with antiseptic coated strings] Personal communication, Dec. 17, 1987.
86. DOMINICAN REPUBLIC. CONSEJO NACIONAL DE POBLACIÓN Y FAMILIA (CONAPOFA). and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Encuesta demografica y de salud 1986. [Demographic and health survey 1986.][SPA] Santa Domingo, Dominican Republic, NCPF, and [Columbia, Maryland], IRD/W, Feb. 1987. 21 p.
87. DORING, G., BAUR, S., FRANK, P., FREUNDL, G., and SOTTONG, U. Ergebnisse einer repräsentativen Umfrage zum Familienplanungsverhalten in der Bundesrepublik Deutschland 1985. [Results of a representative survey of family planning behavior in the Federal Republic of Germany 1985.][GER] Geburtshilfe und Frauenheilkunde 12(46): 857–920. Dec. 1986.
88. DREHER, E., CIMBER, H., and MUHLEMANN, M. Intrauterine occlusion body (IUB): preliminary report. [1987]. 18 p. (Unpublished)
89. DROST, R.H., MAES, R., and THIERY, M. Copper release from the MLCu375 intrauterine contraceptive device. IRCS Journal of Medical Science 11(10): 895. Oct. 1983.
90. EDELMAN, D.A., BERGER, G.S., and KEITH, L.G. Intrauterine devices and their complications. Boston, G.K. Hall, 1979. 263 p.
91. EDELMAN, D.A., ZIPPER, J., RIVERA, M., and MEDEL, M. Timing of the IUD insertion. Contraception 19(5): 449–454. May 1979.
92. ELSTEIN, M. Pelvic inflammation and the intrauterine contraceptive device. Proceedings of the Royal Society of Medicine 60(4): 397. Apr. 1967.
93. ESCHENBACH, D.A. Acute pelvic inflammatory disease. Urologic Clinics of North America 11(1): 65–81. Feb. 1984.
94. ESCHENBACH, D.A. Epidemiology and diagnosis of acute pelvic inflammatory disease. Obstetrics and Gynecology 55(5, Suppl.): 142S-152S. May 1980.
95. ESCHENBACH, D.A. and SODERSTROM, R.M. IUDs and salpingitis. In: Hafez, E.S.E. and Van Os, W.A.A., eds. IUD pathology and management. Boston, G.K. Hall, 1980. (Progress in Contraceptive Delivery Systems Vol. 3) p. 147–158.
96. FAMILY HEALTH INTERNATIONAL. Careful IUD insertion can reduce STD transmission. Network 8(2): 7. Winter 1987.
97. FAMILY HEALTH INTERNATIONAL. IUDs and PID: understanding the American situation. Network 8(2): 8. Winter 1987.
98. FAMILY HEALTH INTERNATIONAL. IUD Update: What family planners should know. 8(2): 1-3. Winter 1987.
99. FAMILY HEALTH INTERNATIONAL. Postpartum IUDs in Mexico. Network 6(2): 8. Winter 1985.
100. FAMILY HEALTH INTERNATIONAL. Preventing PID in IUD acceptors at insertion. Network 8(2): 3. Winter 1987.
101. FAMILY PLANNING ASSOCIATION OF HONG KONG (FPAHK). Family planning knowledge, attitude and practice in Hong Kong 1982. Wanchai, Hong Kong, FPAHK, 1984. 125 p.
102. FARLEY, T.M.M. Life-table methods for contraceptive research. Statistics in Medicine 5: 475–489. 1986.
103. FAULKNER, W.L. and ORY, H.W. Intrauterine devices and acute pelvic inflammatory disease. Journal of the American Medical Association 235(17): 1851–1853. Apr. 26, 1976.
104. FINISHING ENTERPRISES (FI). Prescribing information: Copper T model TCu 200B. North Tonawanda, New York, 1985. 6 p. (Pamphlet)
105. FINISHING ENTERPRISES (FI). Prescribing information: Copper T model TCu 380A. North Tonawanda, New York, 1985. 6 p. (Pamphlet)
106. FISHEL, S.B. and EDWARDS, R.G. Human chorionic gonadotropin secreted by preimplantation embryos cultured in vitro. Science 223 (4638): 816–818. Feb. 24, 1984.
• 107. FISHER, A.A. and SILVA, V. DE. Satisfied IUD acceptors as family planning motivators in Sri Lanka. Studies in Family Planning 17(5): 235–242. Sep.-Oct. 1986.
108. FLESH, G., WEINER, J.M., CORLETT, R.C., Jr., BOICE, C., MISHELL, D.R., Jr., and WOLF, R.M. The intrauterine contraceptive device and acute salpingitis: a multifactor analysis. American Journal of Obstetrics and Gynecology 135(3): 402–408. Oct. 1, 1979.
109. FOREMAN, H., STADEL, B.V., and SCHLESSELMAN, S. Intrauterine device usage and fetal loss. Obstetrics and Gynecology 58(6): 669–677. Dec. 1981.
110. FORNARY, J. (International Planned Parenthood Federation (IPPF)) [IPPF IUD supplies 1986–87] Personal communication, Oct. 23, 1987.
111. FORREST, J.D. The end of IUD marketing in the United States: What does it mean for American women? Family Planning Perspectives 18(2): 52–57. Mar.-Apr. 1986.
112. FRASER, S. Vietnam's campaign makes progress. People 14(3): 25. 1987.
• 113. GALLEN, M. and LETTENMAIER, C.L. Counseling makes a difference. Population Reports, Series J, No. 35. Baltimore, Johns Hopkins University, Population Information Program, Jul.-Aug. 1987. 32 p.
114. GALVEZ, R.S., GALICH, L., GUIROLA, A.M., COLE, L.P., and WASZAK, C. A comparative study of the TCu200B with and without strings. Advances in Contraceptive Delivery Systems 1: 107–112. 1985.
115. GAO J., ZENG S., SUN B., WU S., DONG J., CONG J., ZHU X., FAN H., HAN L., and ZHENG X. Menstrual blood loss, haemoglobin and ferritin concentration of Beijing women wearing steel ring, VCu 200, and TCu 220c IUDs. Contraception 34(6): 559–571. Dec. 1986.
116. GIBOR, Y. and PHARRIS, B. Grossesse extra-uterine et D.I.U. [Extrauterine pregnancies and IUD use.][FRE] Contraception, Fertilite, Sexualite 8(2): 109–120. Feb. 1980.
117. GOH, T.H. and HARIHARAN, M. Effect of laparoscopic sterilization and insertion of Multiload Cu 250 and Progestasert IUDs on serum ferritin levels. Contraception 28(4): 329–336. Oct. 1983.
118. GOH, T.H. and TONG, S.L. Patterns of copper loss—a comparison of the multiload Cu250, TCu-220C and Cu7 IUDs. Contraception 33(4): 411–420. Apr. 1986.
119. GOH, T.H., ANG, E.S., and YIP, Y.C. Menstrual flow duration and spotting following Multiload Copper 250 intra-uterine device insertion. Journal of Obstetrics and Gynaecology 4(2): 127–128. Oct. 1983.
120. GOH, T.H., HARIHARAN, M., and CHAN, G.L. Anaemia and menstrual blood loss studies in women using Multiload Cu250 and Progestasert IUDs. Contraception 29(4): 359–366. Apr. 1984.
121. GOH, T.H., HUTAPEA, H., MCCARTHY, T., et. al. A multicenter randomized comparative investigation of ML Cu250, TCu-220C and Cu7 IUDs. Advances in Contraceptive Delivery Systems, 1985. (Monograph 1) p. 126–130.
122. GOLDMAN, N., PEBLEY, A.R., and WESTOFF, C.F. Probabilities of conception in Latin America. Presented at the annual meeting of the Population Association of America, Apr. 30, 1982. 30 p.
123. GOLDSTUCK, N.D. Pain reduction during and after insertion of an intrauterine contraceptive device. Advances in Contraception 3(1): 25–36. Mar. 1987.
124. GONZALEZ, M.I., EMMONS, D.W., and PIENIAZEK, D. Socioeconomic characteristics of medical practice 1986. Chicago, Illinois, American Medical Association, 1986. p. 12–16, 136–137.
125. GRAY, R.H. and LABBOK, M. Family planning components in community based distribution projects: risk/benefit considerations in the choice of methods. In: Wawer, M., Huffman, S., Cebula, D., and Osborn, R. Health and family planning in community-based distribution programs. Boulder, Colorado, Westview Press, 1985. p. 65–103.
• 126. GRAY, R.H., RAMOS, R., AKIN, A., and BERNARD, R. Manual for the provision of intrauterine devices (IUDs). Geneva, World Health Organization, 1980. 51 p.
• 127. GRIMES, D.A. Intrauterine devices and pelvic inflammatory disease: recent developments. Contraception 36(1): 97–110. Jul. 1987.
128. GRIMES, D.A. Nongonococcal pelvic inflammatory disease. Clinical Obstetrics and Gynecology 24(4): 1227–1243. Dec. 1981.
129. GUERRA, F., WARREN, C.W., OBERLE, M.W., and MORRIS, L. Maternal-child health/family planning survey: Panama 1984. Atlanta, Georgia, Centers for Disease Control, Mar. 1986. 140 p.
130. GUILLEBAUD, J. Scheme for management of "lost" IUD threads. IPPF Medical Bulletin 14(5): 1–3. Oct. 1980.
131. GUILLEBAUD, J. and BONNAR, J. Estimation and prediction of IUD-related increased duration and amount of menstrual blood loss. In: Hafez, E.S.E. and Van Os, W.A.A., eds. IUD pathology and management. Boston, G.K. Hall, 1980. (Progress in Contraceptive Delivery Systems Vol. 3) p. 75–92.
132. GUILLEBAUD, J. and BONNAR, J. Longer though lighter menstrual and intermenstrual bleeding with copper as compared to inert intrauterine devices. British Journal of Obstetrics and Gynaecology 85(9): 707–712. Sep. 1978.
133. GUILLEBAUD, J. and KASONDE, J.M. A simple scheme for managing the problem of "lost threads" with intrauterine devices. Fertility and Contraception 3(2): 24–32. Apr. 1979.
134. GUILLEBAUD, J., BARNETT, M.D., and GORDON, Y.B. Plasma ferritin levels as an index of iron deficiency in women using intrauterine devices. British Journal of Obstetrics and Gynaecology 86(1): 51–55. Jan. 1979.
135. GUILLEBAUD, J., BONNAR, J., MOREHEAD, J., and MATHEWS, A. Menstrual blood-loss with intrauterine devices. Lancet 1(7956): 387–390. Feb. 21, 1976.
136. GUMP, D.W., GIBSON, M., and ASHIKAGA, T. Evidence of prior pelvic inflammatory disease and its relationship to Chlamydia trachomatis antibody and intrauterine contraceptive device use in infertile women. American Journal of Obstetrics and Gynecology 146(2): 153–159. May 15, 1983.
137. GUTTMACHER, A.F. Intrauterine contraceptive devices. Journal of Reproduction and Fertility 10: 115–128. 1965.
138. HAGER, W.D., ESCHENBACH, D.A., SPENCE, M.R., and SWEET, R.L. Criteria for diagnosis and grading of salpingitis. Obstetrics and Gynecology 61(1): 113–114. Jan. 1983.
139. HALL, J.M. and BLEICH, J. Manufacturer halts Saf-T-Coil production. Contraceptive Technology Update 3(9): 109–110. Sep. 1982.
140. HARLAP, S. HIV and fertility regulation. 1987. 25 p. (Unpublished)
141. HASSON, H.M., BERGER, G.S., and EDELMAN, D.A. Factors affecting intrauterine contraceptive device performance: 1. Endometrial cavity length. American Journal of Obstetrics and Gynecology 126(8): 973–981. Dec. 15, 1976.
142. HATCHER, R.A., GUEST, F., STEWART, F., STEWART, G.K., TRUSSELL, J., CEREL, S., and CATES, W. Contraceptive technology 1986–1987. 13th rev. ed. New York, Irvington Publishers, 1986. 310 p.
143. HAUB, C. and KENT, M.M. 1987 world population data sheet. [Wall chart] Washington, D.C., Population Reference Bureau, 1987.
144. HEARTWELL, S.F. and SCHLESSELMAN, S. Risk of uterine perforation among users of intrauterine devices. Obstetrics and Gynecology 61(1): 31–36. Jan. 1983.
145. HEATH, K., MARTINEZ, D., and SHEON, A.R. Trinidad and Tobago Demographic and Health Survey (TTDHS) 1987: preliminary report. [Port-of-Spain], Trinidad and Tobago. [and Columbia, Maryland], Family Planning Association of Trinidad and Tobago. and Institute for Resource Development/Westinghouse, Jan. 1988. 22 p.
146. HEIKKILÄ, M., HAUKKAMAA, M., and LUUKKAINEN, T. Contraception with a levonorgestrel-releasing IUD: effect on lactation and child development. In: Zatuchni, G.I., Goldsmith, A., Shelton, J.D., Sciarra, J.J., and Osborn, C.K., eds. Long-acting contraceptive delivery systems. Philadelphia, Harper & Row, 1984. p. 368–377.
147. HEIKKILÄ, M., NYLANDER, P., and LUUKKAINEN, T. Body iron stores and patterns of bleeding after insertion of a levonorgestrel- or a copper-releasing intrauterine contraceptive device. Contraception 26(5): 465–474. Nov. 1982.
148. HERMANNS, U. and HAFEZ, E.S.E. IUD use and carcinoma of the cervix. Contraceptive Delivery Systems 2(1): 109–119. Apr. 1981.
149. HEROLD, J.M., WARREN, C.W., SMITH, J.C., ROCHAT, R.W., MARTINEZ, R., and VERA, M. Contraceptive use and the need for family planning in Puerto Rico. International Family Planning Perspectives 12(4): 125–131. Dec. 1986.
150. HIRVONEN, E., KAIVOLA, S., and TIMONEN, H. Fincoid—a new copper IUD: a preliminary report. Contraceptive Delivery Systems 3(2): 83–89. Apr. 1982.
151. HONDURAS. MINISTRY OF PUBLIC HEALTH (HMPH). and ASSOCIATION FOR FAMILY PLANNING IN HONDURAS (ASHONPLAFA). Maternal-child health and family planning survey: Honduras, 1984: Final report. [Tegucigalpa, Honduras], HMPH and ASHONPLAFA, Dec. 1986. 202 p.
152. HONORE, L.H. The intrauterine contraceptive device and hydatidiform mole: a negative association. Contraception 34(2): 213–219. Aug. 1986.
153. HÖPFLINGER, F. and KÜHNE, F. Contraception: answers of wives and husbands compared in a survey of Swiss couples. Journal of Biosocial Science 16(2): 259–268. Apr. 1984.
154. HSU, C.-T., ROAN, C.-H., CHANG, H.-T., CHEN, S.-Z., LIN, Y.-N., and CHEN, T.-Y. Uterine malignancies developing after a long term use of IUCD's. Asia-Oceania Journal of Obstetrics and Gynaecology 10(3): 347–357. Sep. 1984.
155. HUNGARY. CENTRAL STATISTICAL OFFICE (CSO). Summary of the 1986 fertility surveys. Budapest, CSO, 1987. 21 p.
• 156. HUTCHINGS, J.E., BENSON, P.J., PERKIN, G.W., and SODERSTROM, R.M. The IUD after 20 years: a review of worldwide experience. International Family Planning Perspectives 11(3): 77–86. Sep. 1985.
157. INDONESIA. BUREAU OF PUBLIC STATISTICS (BPS). Ulasan singkat: hasil Survei Penduduk Antar Sensus 1985. [A brief note on the results of the 1985 Intercensal Population Survey.] Jakarta, BPS, 1985. (Series No. 4)
158. INSTITUTE OF POPULATION STUDIES. Preliminary assessment of the Fincoid IUD. Devon, England, University of Exeter, 1980. (Report 3/80) 30 p.
159. INTERNATIONAL FEDERATION OF FERTILITY SOCIETIES. The Singapore statement on IUDs. Oct. 30, 1986. 1 p. (Unpublished)
160. INTERNATIONAL FERTILITY RESEARCH PROGRAM. Intrauterine device study: clinical table 4: events after insertion.

[Table] [1982]. 1 p. (Unpublished)
• 161. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Concerns in the USA about IUDs—IMAP's comments. IPPF Medical Bulletin 20(2): 1. Apr. 1986.
162. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Contraceptive and medical services. [Policy compendium] [London], IPPF, Nov. 1985. 5 p.
163. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). Family planning in Chile: a profile of the development of policies and programmes. London, IPPF, [1980]. 25 p.
• 164. INTERNATIONAL PLANNED PARENTHOOD FEDERATION (IPPF). IPPF International Medical Advisory Panel meetings, 1987. IPPF Medical Bulletin 21(6): 3–6. Dec. 1987.
165. INTERNATIONAL PLANNED PARENTHOOD FEDERATION. Guidelines for IUD sterilization. IPPF Medical Bulletin 19(6): 3. Dec. 1985.
166. IOFFREDA, I. (International Development Procurement Services) [Shipment of IUDs for International Planned Parenthood, 1983–85] Personal communication, Nov. 10, 1987.
167. ISRAEL, R., SHAW, S.T., Jr., and MARTIN, M.A. Comparative quantitation of menstrual blood loss with the Lippes Loop, Dalkon Shield, and Copper T intrauterine devices. Contraception 10(1): 63–71. Jul. 1974.
168. JACOB, M., SHAHMANESH, M., WHATLEY, J., and THIN, N. A forgotten factor in pelvic inflammatory disease: infection in the male partner. British Medical Journal 294(6576): 869. Apr. 4, 1987.
169. JACOBSON, L. and WESTROM, L. Objectivized diagnosis of acute pelvic inflammatory disease. American Journal of Obstetrics and Gynecology 105: 1088–1098. Sep.-Dec. 1969.
170. JAGDEO, T.P. Contraceptive prevalence in Grenada. New York, International Planned Parenthood Federation, Western Hemisphere Region, 1987. (IPPF/WHR Caribbean Contraceptive Prevalence Surveys No. 3) 169 p.
171. JAGDEO, T.P. Contraceptive prevalence in Montserrat. New York, International Planned Parenthood Federation, Western Hemisphere Region, 1985. (IPPF/WHR Caribbean Contraceptive Prevalence Surveys No. 2) 152 p.
172. JAGDEO, T.P. Contraceptive prevalence in St. Kitts-Nevis. New York, International Planned Parenthood Federation, Western Hemisphere Region, 1985. 126 p.
173. JAIN, A.K. Comparative performance of three types of IUDs in the United States. In: Hefnawi, F. and Segal, S.J., eds. Proceedings of the Third International Conference on Intrauterine Contraception, Cairo, Egypt, Dec. 12–14, 1974. Amsterdam, North-Holland, 1975. p. 3–16.
• 174. JOHANNISSON, E. Mechanism of action of intrauterine devices: biochemical changes. Contraception 36(1): 11–22. Jul. 1987.
175. KAMNUANSILPA, P. and CHAMRATRITHIRONG, A. Contraceptive use and fertility in Thailand: results from the 1984 Contraceptive Prevalence Survey. Bangkok, National Institute of Development Administration, Research Center; Mahidol University, Institute for Population and Social Research; and Ministry of Public Health, National Family Planning Program, 1985. 154 p.
176. KAUFMAN, D.W., SHAPIRO, S., ROSENBERG, L., MONSON, R.R., MIETTINEN, O.S., STOLLEY, P.D., and SLONE, D. Intrauterine contraceptive device use and pelvic inflammatory disease. American Journal of Obstetrics and Gynecology 136(2): 159–162. Jan. 15, 1980.
177. KAUFMAN, D.W., WATSON, J., ROSENBERG, L., HELMRICH, S.P., MILLER, D.R., MIETTINEN, O.S., STOLLEY, P.D., and SHAPIRO, S. The effect of different types of intrauterine devices on the risk of pelvic inflammatory disease. Journal of the American Medical Association 250(6): 759–762. Aug. 12, 1983.
178. KAUNITZ, A.M. and GRIMES, D.A. Good news about contraceptives and PID. Contemporary Ob/Gyn 27(3): 153–157. Mar. 1986.
179. KAYE, B.M., REANEY, B.V., KAYE, D.L., and EDELMAN, D.A. Long-term safety and use-effectiveness of intrauterine devices. Fertility and Sterility 28(9): 937–942. Sep. 1977.
180. KENYA. CENTRAL BUREAU OF STATISTICS (CBS). Kenya Contraceptive Prevalence Survey 1984: first report. Nairobi, CBS, Dec. 1984. 160 p.
181. KETTING, E. and LELIVELD, F. Abortus en anticonceptie anno 1982: Jaarverslag van de Permanente Registratie Abortus, aangevuld met diverse onderzoeksgegevens betreffende anticonceptiegebruik in Nederland. [Abortion and contraception in 1982. Annual report from the Permanent Registration of Abortion, supplemented by various research data relating to the use of contraceptives in the Netherlands.][DUT, summary in ENG] The Hague, Netherlands, Vereniging Stimezo Nederland, 1983. 182 p.
182. KETTING, E. and VAN OS, W.A.A. IUD use in western Europe. In: Zatuchni, G.I., Goldsmith, A., and Sciarra, J.J. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 37–44.
183. KEY, T.C. and KREUTNER, A.K. Gastrointestinal complications of modern intrauterine devices. Obstetrics and Gynecology 55(2): 239–244. Feb. 1980.
184. KHAN, M., RAHMAN, S., JAHA, N.K., and HUQ, N. A prospective study of IUD in Dhaka city. In: Khan, A.R. and Mia, A., eds. Contraceptive practice in Bangladesh: safety issues. Dhaka, Bangladesh, Program for the Introduction and Adaptation of Contraceptive Technology/Program for Appropriate Technology in Health, Nov. 1984. p. 304–335.
185. KHAN, M.E. and PRASAD, C.V.S. Family planning practices in India—Second All India Survey. Baroda, India, Operations Research Group, 1983. 215 p.
186. KIM-FARLEY, R.J., CATES, W., Jr., ORY, H.W., and HATCHER, R.A. Febrile spontaneous abortion and the IUD. Contraception 18(6): 561–570. Dec. 1978.
187. KIRKWOOD, B.J., FACER, W.A.P., LAWRENCE, G.M., and HUNTON, R.B. Contraceptive practice among New Zealand women. New Zealand Medical Journal 89(641): 108–111. Aug. 8, 1979.
188. KIVIJÄRVI, A., TIMONEN, H., RAJAMÄKI, A., and GRÖNROOS, M. Iron deficiency in women using modern copper intrauterine devices. Obstetrics and Gynecology 67(1): 95–98. Jan. 1986.
189. KLEIN-ECHEVERRI, L. (Pathfinder Fund) [Pathfinder Fund IUD supplies, 1980–87] Personal communication, May 27, 1987.
190. KLEINMAN, R.L., ed. Family planning handbook for doctors. 5th ed. London, International Planned Parenthood Federation, 1980. 243 p.
• 191. KLEINMAN, R.L., ed. Family planning handbook for midwives and nurses. 3rd ed. London, International Planned Parenthood Federation, 1986. 79 p.
192. KOBAYASHI, K. Contraception. In: Mainichi Newspapers Population Problems Research Council (MNPPRC). Summary of eighteenth national survey on family planning. Tokyo, MNPPRC, 1986. p. 97–109.
193. KOCH, J.U. Sperm migration in the human female genital tract with and without intrauterine devices. Acta Europaea Fertilitatis 11(1): 33–60. Mar. 1980.
194. KOCH, U.J. Cytological investigations in women with the IUD ML Cu 250 in situ and other methods of fertility regulation. Presented at the Reproductive Health Care International Symposium, Maui, Hawaii, Oct. 10–15, 1982. 9 p.
195. KOETSAWANG, S., RACHAWAT, D., and PIYA-ANANT, M. Outcome of pregnancy in the presence of intrauterine device. Acta Obstetricia et Gynecologica Scandinavica 56(5): 479–482. 1977.
196. KOLS, A., RINEHART, W., PIOTROW, P.T., DOUCETTE, L., and QUILLIN, W.F. Oral contraceptives in the 1980s. Population Reports, Series A, No. 6. Baltimore, Johns Hopkins University, Population Information Program, May-Jun. 1982. 36 p.
197. KOREA INSTITUTE FOR POPULATION AND HEALTH (KIPH). [1985 fertility and family health survey].[KOR] Seoul, Korea, KIPH, 1985. 390 p.
198. KOSASA, T., LEVESQUE, L., GOLDSTEIN, D.P., and TAYMOR, M.L. Early detection of implantation using a radioimmunoassay specific for human chorionic gonadotropin. Journal of Clinical Endocrinology and Metabolism 36(3): 622–624. 1973.
199. KOSONEN, A. Corrosion of copper in utero. Fertility and Sterility 30(1): 59–65. Jul. 1978.
200. KOŽUH, M., ANDOLSEK, L., and ALLONEN, H. A randomized comparative trial of Nova-T and TCu200Ag in Yugoslavia. Advances in Contraception 2(1): 31–36. Mar. 1986.
201. KOŽUH-NOVAK, M., ANDOLŠEK, L., HREN-VENCELJ, H., GUBINA, M., and KRALJ, B. Risk factors for pelvic inflammatory disease in IUD users. In: Hasson, H., Hafez, E.S.E., and Van Os, W.A.A., eds. Biomedical aspects of IUDs. Hingham, Massachusetts, MTP Press, 1985. (Advances in Reproductive Health Care) p. 65–76.
202. KUBBA, A.A. and BOUNDS, W. (Margaret Pyke Centre) [Retrieval of missing IUD strings] Personal communication, Oct. 10, 1987.
203. LADIPO, O.A. Training of midwives in family planning in Nigeria. Planners' Forum 1(1): 5–6. 1983.
204. LAING, J.E. Continuation and effectiveness of contraceptive practice: a cross-sectional approach. Studies in Family Planning 16(3): 138–153. May-Jun. 1985.
205. LARSON, A. Fertility and the status of women. [Wall chart] Washington, D.C., Population Reference Bureau, [1981].
206. LARSSON, B., FRANKMAN, O., and HAMBERGER, L. Concentrations of copper in human secretions and weight of the copper wire during the 4 to 7 years after insertion of a Cu-IUD (intrauterine device). Fertility and Sterility 36(6): 734–736. Dec. 1981.
207. LARSSON, B., HAMBERGER, L., and RYBO, G. Influence of copper intrauterine contraceptive devices (Cu-7-IUD) on the menstrual blood-loss. Acta Obstetricia et Gynecologica Scandinavica 54(4): 315–318. 1975.
• 208. LEE, N.C., RUBIN, G.L., and BORUCKI, R. The intrauterine device and pelvic inflammatory disease: new results from the Women's Health Study. (To be published by Obstetrics and Gynecology)
• 209. LEE, N.C., RUBIN, G.L., ORY, H.W., and BURKMAN, R.T. Type of intrauterine device and the risk of pelvic inflammatory disease. Obstetrics and Gynecology 62(1): 1–6. Jul. 1983.
210. LEHFELDT, H. Comparative study of two intra-uterine contraceptive devices. [Abstract] In: Segal, S.J., Southam, A.L., and Shafer, K.D., eds. Intra-uterine contraception. Amsterdam, Excerpta Medica, 1965. (International Congress Series No. 86) p. 237.
211. LEHFELDT, H. Immediate postabortion insertion of an IUD. European Journal of Obstetrics, Gynecology and Reproductive Biology 17(2–3): 141–147. May 1984.
212. LEIDHOLM, P., RYBO, G., SJOBERG, N.-O., and SOLVELL, L. Copper IUD: influence on menstrual blood loss and iron deficiency. Contraception 12(3): 317–325. Sep. 1975.
213. LEISHMAN, G. (Ortho Pharmaceuticals, Canada) [Instructions for copper IUD use] Personal communication, Oct. 13, 1987.
• 214. LETTENMAIER, C.L. and GALLEN, M. Counseling guide. Population Reports, Series J, No. 36. Baltimore, Johns Hopkins University, Population Information Program, Sep.-Oct. 1987. 28 p.
215. LEWIT, S. Outcome of pregnancy with intrauterine devices. Contraception 2(1): 47–57. Jul. 1970.
216. LIPPES, J. A study of intra-uterine contraception: development of a plastic loop. In: Tietze, C. and Lewit, S., eds. Intrauterine contraceptive devices. (Proceedings of the conference, New York, Apr. 30-May 1, 1962) Amsterdam, Excerpta Medica, 1962. p. 383–390.
217. LISKIN, L., BLACKBURN, R., and GHANI, R. Hormonal contraception: new long-acting methods. Population Reports, Series K, No. 3. Baltimore, Johns Hopkins University, Population Information Program, Mar.-Apr. 1987. 32 p.
218. LISKIN, L., BLACKBURN, R., and MAIER, J.H. AIDS—a public health crisis. Population Reports, Series L, No. 6. Baltimore, Johns Hopkins University, Population Information Program, Jul.-Aug. 1986. 36 p.
219. LISKIN L. and FOX, G. IUDs: an appropriate contraceptive for many women. Population Reports, Series B, No. 4. Baltimore, Johns Hopkins University, Population Information Program, July 1982. 36 p.
• 220. LONDON, K., CUSHING, J., CLELAND, J., ANDERSON, J.E., MORRIS, L., MOORE, S.H., and RUTSTEIN, S.O. Fertility and family planning surveys: an update. Population Reports, Series M, No. 8. Baltimore, Johns Hopkins University, Population Information Program, Sep.-Oct. 1985. 60 p.
221. LUDI, J. (FUNDATECH S.A.) [Fundus-fixing IUD] Personal communication, Aug. 21, 1987.
222. LUUKKAINEN, T. and NILSSON, C.G. Sustained intrauterine release of d-norgestrel. Contraception 18(4): 451–458. Oct. 1978.
223. LUUKKAINEN, T. and NILSSON, C.G. The development of levonorgestrel IUD. [1982]. 29 p. (Unpublished)
224. LUUKKAINEN, T., ALLONEN, H., HAUKKAMAA, M., et. al. Effective contraception with the levonorgestrel-releasing intrauterine device: 12-month report of a European multicenter study. Contraception 36(2): 161–179. August 1987.
• 225. LUUKKAINEN, T., ALLONEN, H., HAUKKAMAA, M., LÄHTEENMÄKI, P., NILSSON, C.G., and TOIVONEN, J. Five years' experience with levonorgestrel-releasing IUDs. Contraception 33(2): 139–148. Feb. 1986.
226. LUUKKAINEN, T., ALLONEN, H., NIELSEN, N.-C., NYGREN, K.-G., and PYÖRÄLÄ, T. Five years' experience of intrauterine contraception with the Nova-T and the Copper-T-200. American Journal of Obstetrics and Gynecology 147(8): 885–892. Dec. 15, 1983.
227. LUUKKAINEN, T., NIELSEN, N.-C., NYGREN, K.-G., and PYÖRÄLÄ, T. Nulliparous women, IUD and pelvic infection. Annals of Clinical Research 11(4): 121–124. 1979.
228. MACFARLAN, S.M. Perforation of the postpartum uterus with an intrauterine contraceptive device. American Journal of Obstetrics and Gynecology 94(2): 283. Jan. 15, 1966.
229. MALMQVIST, R., PETERSOHN, L., and BENGTSSON, L.P. Menstrual bleeding with copper-covered intrauterine contraceptive devices. Contraception 9(6): 627–633. Jun. 1974.
230. MAURITIUS. MINISTRY OF HEALTH (MOH). FAMILY PLANNING/MATERNAL-CHILD HEALTH DIVISION. Mauritius Contraceptive Prevalence Survey 1985: final report. Port Louis, Mauritius, MOH, Feb. 1987. 134 p.
231. MILLS, A. and BIDDELL, S. AIDS (acquired immune deficiency syndrome), family planning and well woman services. British Journal of Family Planning 13(1): 11–15. Apr. 1987.
232. MISHELL, D.R., Jr. Pregnancy-related complications and bleeding problems with IUDs. In: Sciarra, J.J., Zatuchni, G.I., and Speidel, J.J., eds. Risks, benefits and controversies in fertility control. Hagerstown, Maryland, Harper & Row, 1978. p. 428–434.
233. MISHELL, D.R., Jr. and ROY, S. Copper intrauterine contraceptive device event rates following insertion 4 to 8 weeks post partum. American Journal of Obstetrics and Gynecology 143(1): 29–35. May 1, 1982.
234. MISHELL, D.R., Jr., BELL, J.H., GOOD, R.G., and MOYER, D.L. The intrauterine device: a bacteriologic study of the endometrial cavity. American Journal of Obstetrics and Gynecology 96(1): 119–126. Sep. 1, 1966.
235. MISHELL, D.R., Jr., ISRAEL, R., and FREID, N. A study of the Copper T intrauterine contraceptive device (TCu 200) in nulliparous women. American Journal of Obstetrics and Gynecology 116(8): 1092–1096. Aug. 15, 1978.
236. MITRA AND ASSOCIATES (MA). Bangladesh Contraceptive Prevalence Survey-1985: key tables. Dhaka, MA, 1985. 24 p.
237. MITTAL, S., GUPTA, I., LATA, P., MAHAJAN, U., and GUPTA, A.N. Management of translocated and incarcerated intrauterine contraceptive devices. Australian and New Zealand Journal of Obstetrics and Gynaecology 26: 232–234. 1986.
238. MIZNE, S. (Produtos Medicos Ltd.) [IUD production in Brazil] Personal communication, Aug. 11, 1987.
239. MOROCCO. MINISTERE DE LA SANTE PUBLIQUE. SERVICE D'ETUDE DE INFORMATION SANITAIRE. and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Enquête nationale sur la planification familiale, la fecondite et la sante de la population au Maroc (ENDS), 1987. [National study on family planning, fertility and health of the Moroccan population (ENDS), 1987.][SPA] Columbia, Maryland, IRD/W, Oct. 1987. 20 p.

240. MORROW, M. (Program for the Introduction and Adaptation of Contraceptive Technology) [IUD research and manufacturing in China] Personal communication, Oct. 29, 1987.
241. MOSHER, W.D. Contraceptive utilization, United States, 1976. Data from the National Survey of Family Growth. Vital and Health Statistics, Series 23, No. 7, Mar. 1981. 58 p.
242. MOSHER, W.D. and BACHRACH, C.A. Contraceptive use: United States, 1982. Hyattsville, Maryland, US Department of Health and Human Services, National Center for Health Statistics, Sep. 1986. (Vital and Health Statistics Series 23, No. 12) 52 p.
243. MOYER, D.L. and MISHELL, D.R., Jr. Reactions of human endometrium to the intrauterine foreign body: 2. Long-term effects on the endometrial histology and cytology. American Journal of Obstetrics and Gynecology 111: 68–80. Sep. 1, 1971.
244. MUIR, D.G. and BELSEY, M.A. Pelvic inflammatory disease and its consequences in the developing world. American Journal of Obstetrics and Gynecology 138(7, Pt.2): 913–928. Dec. 1, 1980.
245. MÜNZ, R. Leben mit Kindern: Wunsch und Wirklichkeit. [Living with children: desire and reality.][GER] Vienna, Franz Deuticke Verlagsgesellschaft, 1985. 385 p.
246. MURPHY, T. Ortho stops marketing Lippes Loop; cites economic factors. Contraceptive Technology Update 6(11): 149–152. Nov. 1985.
247. MURRAY, S., HICKEY, J.B., and HOUANG, E. Significant bacteremia associated with replacement of intrauterine contraceptive device. American Journal of Obstetrics and Gynecology 156(3): 698–700. Mar. 1987.
248. N'DIAYE, S., SARR, I., and AYAD, M. Enquête demographique et de sante au Senegal 1986: rapport preliminaire. [Senegal Demographic and Health Survey 1986: preliminary results.][FRE] Columbia, Maryland, Institute for Resource Development/Westinghouse, 1986. 39 p.
249. NASH, H. (Population Council) [Planned research for the levonorgestrel-releasing IUD and TCu-380Ag; lifespan of copper IUDs] Personal communication, Oct. 2, 1987.
250. NEHRA, P.C. and MAGYAR, D.M. Hematologic characteristics in IUD users. Contraceptive Delivery Systems 3(2): 149–154. Apr. 1982.
251. NEPAL. MINISTRY OF HEALTH (MOH). PLANNING, RESEARCH AND EVALUATION DIVISION. NEPAL FAMILY PLANNING AND MATERNAL CHILD HEALTH PROJECT. Preliminary report: findings from Nepal fertility and family planning survey, 1986. Kathmandu, Nepal, MOH, Jul. 1986. 51 p. (Mimeo)
252. NEWTON, J.R. Copper intrauterine devices: evaluation for long-term use: a review. British Journal of Obstetrics and Gynaecology (Suppl. 4): 20–31. Sep. 1982.
253. NEWTON, W. and KEITH, L.G. Role of sexual behavior in the development of pelvic inflammatory disease. Journal of Reproductive Medicine 30(2): 82–88. Feb. 1985.
254. NIELSEN, N.-C., PYÖRÄLÄ, T., ALLONEN, H., NYGREN, K.-G., and LUUKKAINEN, T. Four years of the comparative study with Nova T and Copper T 200. [1982]. 22 p. (Unpublished)
255. NIGERIA. ONDO STATE. MINISTRY OF HEALTH. MEDICAL/PREVENTATIVE HEALTH DIVISION. and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Ondo State, Nigeria: Demographic and Health Survey 1986: preliminary report. Columbia, Maryland, IRD/W, Aug. 1987. 20 p.
256. NIHLMAR, A. (World Health Organization (WHO)) [WHO IUD supplies] Personal communication, Jul. 23, 1987.
257. NILSSON, C.G., LAHTEENMÄKI, P.L.A., and LUUKKAINEN, T. Ovarian function in amenorrheic and menstruating users of a levonorgestrel-releasing intrauterine device. Fertility and Sterility 41(1): 52–55. Jan. 1984.
258. NILSSON, C.G., LUUKKAINEN, T., DIAZ, J., and ALLONEN, H. Intrauterine contraception with levonorgestrel: a comparative randomised clinical performance study. Lancet 1(8220): 577–580. Mar. 14, 1981.
259. NORTMAN, D.L. Population and family planning programs: a compendium of data through 1983. 12th ed. New York, Population Council, 1985. 58 p.
* 260. ORTIZ, M.E. and CROXATTO, H.B. The mode of action of IUDs. Contraception 36(1): 37–53. Jul. 1987.
261. ORY, H.W. and WOMEN'S HEALTH STUDY. Ectopic pregnancy and intrauterine contraceptive devices: new perspectives. Obstetrics and Gynecology 57(2): 137–144. Feb. 1981.
262. ORY, H.W., FORREST, J.D., and LINCOLN, R. Making choices: evaluating the health risks and benefits of birth control methods. New York, Alan Guttmacher Institute, 1983. 72 p.
263. OSLER, M. (Foreningen for Familieplanlægning) [IUD use in Denmark] Personal communication, Jun. 17, 1987.
264. OSTER, G.K. Chemical reactions of the copper intrauterine device. Fertility and Sterility 23(1): 18–23. Jan. 1972.
265. PAAVONEN, J. and VESTERINEN, E. Intrauterine contraceptive device use in patients with acute salpingitis. Contraception 22(2): 107–114. Aug. 1980.
266. PAKISTAN. MINISTRY OF PLANNING AND DEVELOPMENT (MPD). POPULATION WELFARE DIVISION. Pakistan contraceptive prevalence survey: 1984–85. Islamabad, Pakistan, MPD, Oct. 1986. 101 p.
267. PARDTHAISONG, T. Return of fertility after use of the injectable contraceptive Depo Provera: up-dated data analysis. Journal of Biosocial Science 16(1): 23–34. 1984.
268. PASTENE, L., RIVERA, M., ZIPPER, J., MEDEL, M., and THOMAS, M. IUD insertions by midwives: five years' experience in Santiago, Chile. International Journal of Gynaecology and Obstetrics 15: 84–87. 1977.
* 269. PATHFINDER FUND. Intrauterine devices. Rev. In: Health provider's guide to contraception. [Draft] [1987] 38 p.
270. PAXMAN, J. (Pathfinder Fund) [Role of nurses and midwives in IUD services] Personal communication, Oct. 5, 1987.
271. PEDRÓN, N., GALLEGOS, A.J., LOZANO, M., and AZNAR, R. Menstrual blood loss estimates in women using Copper 7 and Multiload-250 intrauterine devices. Contraception 26(5): 475–485. Nov. 1982.
272. PEREZ, A.E. and CABIGON, J.V. Contraceptive practice in the Philippines: a synthesis. Philippine Population Journal 1(1): 36–57. Mar. 1985.
273. PIOTROW, P.T., RINEHART, W., and SCHMIDT, J.C. IUDs—update on safety, effectiveness, and research. Population Reports, Series B, No. 3. Baltimore, Johns Hopkins University, Population Information Program, May 1979. 52 p.
274. PLANNED PARENTHOOD FEDERATION OF AMERICA (PPFA). Draft minutes of PPFA convened expert panel on the future of the IUD. [Memorandum] New York, PPFA, Feb. 14, 1986. 14 p. (Mimeo)
275. PLANNED PARENTHOOD FEDERATION of AMERICA. Draft minutes of the National Medical Committee Meeting, May 2–3, 1987, San Mateo, California. Jul. 2, 1987.
276. POLAND, B.J., MILLER, J.R., HARRIS, M., and LIVINGSTON, J. Spontaneous abortion. Acta Obstetricia et Gynecologica Scandinavica (Suppl. 102): 1–32. 1981.
277. POMA, P.A. Intrauterine contraception and tubal pathology. International Journal of Fertility 25(4): 287–292. 1980.
278. POMEROY, R. (Family Planning International Assistance (FPIA)) [FPIA IUD supplies, 1982–87] Personal communication, Nov. 19, 1987.
279. POPULATION COUNCIL (PC). Five intrauterine devices for public programs. [Booklet] New York, PC, Nov. 1979. 17 p.
280. POPULATION COUNCIL (PC). The Population Council 1985 annual report. New York, PC, 1985. 92 p.
281. POPULATION COUNCIL. Cleaning surgical instruments. Norplant Worldwide, No. 8. Aug. 1987. p. 3.
282. POPULATION COUNCIL. Memorandum from the Population Council concerning the international availability of Copper T IUDs. New York, Population Council, Feb. 4, 1986. 2 p.
283. PORTER, C.W., Jr. Prevention of infection in voluntary surgical contraception. Biomedical Bulletin 6(1): 1–7. Mar. 1987.
284. PREMA, K. Haemoglobin levels in contraceptive users. Indian Journal of Medical Research 69: 756–760. May 1979.
285. PROGRAM FOR INTERNATIONAL TRAINING IN HEALTH (INTRAH). Semi annual report number six: Apr. 1, 1987-Sep. 30, 1987. Chapel Hill, North Carolina, INTRAH, 1987. 206 p.
286. PROGRAM FOR INTERNATIONAL TRAINING IN HEALTH (INTRAH). Semi-annual report number five: Oct. 1, 1986-Mar. 31, 1987. Chapel Hill, North Carolina, INTRAH, 1987. 179 p.
287. PROGRAM FOR INTERNATIONAL TRAINING IN HEALTH (INTRAH). Trip report, Nigeria, Apr. 15 to May 25, 1986. Chapel Hill, North Carolina, INTRAH, 1986. 22 p.
288. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. [Descriptions of three IUD projects in China] [1984]. 2 p. (Unpublished)
289. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. Contraceptive use in China. 1986. 8 p. (Unpublished)
*290. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. The Copper T 380 IUD: a manual for clinicians. [Booklet] New York, Population Council, Jan. 1985. 20 p.
291. PYÖRÄLÄ, T., ALLONEN, H., NYGREN, K.-G., NIELSEN, N.-C., and LUUKKAINEN, T. Return of fertility after the removal of Nova T or Copper T 200. Contraception 26(2): 113–120. Aug. 1982.
* 292. RAMIREZ, F.J. and STARRS, A.M. The ending of IUD sales in the United States: what are the international implications? International Family Planning Perspectives 13(2): 71–74. Jun. 1987.
293. RAMOS, R. and APELO, R.A. A program of IUD insertions by paraprofessionals and physicians in the Philippines. International Journal of Gynaecology and Obstetrics 16(4): 321–323. Jan.-Feb. 1979.
294. RANDIC, L., VLASIC, S., MATRLJAN, I., and WASZAK, C.S. Return to fertility after IUD removal for planned pregnancy. Contraception 32(3): 253–259. Sep. 1985.
295. REHMER, L.W. (Department of Health and Welfare, Health Information Division, Ottawa, Canada) [IUD use in Canada] Personal communication, Jun. 17, 1987.
296. RIOUX, J.-E., CLOUTIER, D., DUPONT, P., and LAMONDE, D. Long-term study of the safety of the Dalkon Shield and Gyne-T 200 intrauterine devices. Canadian Medical Association Journal 134(7): 747–751. Apr. 1, 1986.
297. RIPHAGEN, F.E., VAN DER VURST, J., and LEHERT, P. Contraception in France. Geneva, International Health Foundation, 1985. 60 p.
298. RIVERA, R., ALMONTE, H., ARREOLA, M., LOPEZ, F., MONARREZ, G., NAVARRO, C., ORTIZ, E., PERKIN, G.W., and RUIZ, R. The use of different hormonal contraceptives and IUDs in anemic women: a six-month follow-up. Advances in Planned Parenthood 15(2): 56–63. 1980.
299. ROBERTSON, E.M. Is the malpractice crisis filtering down to family planning? Contraceptive Technology Update 7(6): 61–64. Jun. 1986.
300. ROBERTSON, E.M., ed. Proceed with caution during difficult IUD insertion. Contraceptive Technology Update 9(3): 25–28. Mar. 1988.
301. ROSENBERG, M.J. and ROSENTHAL, S.M. Reproductive mortality in the United States: recent trends and methodologic considerations. American Journal of Public Health 77(7): 833–836. Jul. 1987.
302. ROSENBERG, M.J., SCHULZ, K.F., and BURTON, N. Sexually transmitted diseases in sub-Saharan Africa. [Letter] Lancet 2(8499): 152. Jul.-19, 1986.
303. ROSENBLATT, R., ZAKIN, D., STERN, W.Z., and KUFCHER, R. Uterine perforation and embedding by intrauterine device: evaluation by US and hysterography. Radiology 157(3): Dec. 1985. p. 765–770.
304. ROSENFIELD, A.G. and CASTADOT, R.G. Early postpartum and immediate postabortion intrauterine contraceptive device insertion. American Journal of Obstetrics and Gynecology 118(8): 1404–1114. Apr. 15, 1974.
305. ROSENFIELD, A.G. and VARAKAMIN, S. The postpartum approach to family planning. American Journal of Obstetrics and Gynecology 113(1): 1–13. May 1, 1972.
306. ROSS, J.A., HONG, S., and HUBER, D.H. Voluntary sterilization: an international fact book. New York, Association for Voluntary Sterilization, 1985. 118 p.
307. ROWE, P. (World Health Organization) [WHO randomized multicenter comparative trials of copper IUDs] Personal communication, Feb. 1, 1988.
308. ROWE, P.J., KOETSAWANG, S., PIZARRO, E., and DIETHELM, P. Comparative bleeding patterns of a progesterone-releasing IUD. In: Hefnawi, F. and Segal, S.J., eds. Analysis of intrauterine contraception. Amsterdam, North-Holland, 1975. p. 185–198.
309. RUIZ, R.G. (Laboratorios Alpha) [IUD production in Mexico] Personal communication, Dec. 21, 1987.
310. RUSLAN, S. (P.T. Kimia Farma, Jakarta, Indonesia) [IUD production in Indonesia] Personal communication, Aug. 6, 1987.
311. RWANDA. NATIONAL OFFICE OF POPULATION (ONAPO). Rwanda 1983: Enquête Nationale sur la Fecondite: Vol. 1. Analyse des resultats. [Rwanda 1983: National Fertility Survey: Vol. 1. Analysis of results.][FRE] Kigali, Rwanda, ONAPO, [1985]. 221 p.
312. SAGIROGLU, N. Phagocytosis of spermatozoa in the uterine cavity of women using intrauterine device. International Journal of Fertility 16(1): 1–14. Jan.-Mar. 1971.
313. SANIEL, F.L. The Bohol IUD program. Studies in Family Planning 10(6–7): 211–212. Jun.-Jul. 1979.
314. SAURE, A., HIRVONEN, E., KIVIJÄRVI, A., and TIMONEN, H. Comparative performance of Fincoid, Nova-T, and ML 375 IUDs. In: Zatuchni, G.I., Goldsmith, A., Sciarra, J.J., and Osborn, C.K., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 104–108.
315. SAYED, H.A.A.H., EL-KHORAZATY, M.N., and WAY, A.A. Fertility and family planning in Egypt: 1984 Cairo, Egypt National Population Council, and Columbia, Maryland, Westinghouse Public Applied Systems, Dec. 1985. 313 p.
316. SEARLE PHARMACEUTICAL GROUP (SPG). Searle discontinues IUD's. [Press release] Skokie, Illinois, SPG, Jan. 31, 1986. 2 p.
317. SEGAL, S.J., ALVAREZ-SANCHEZ, F., ADEJUWON, C.A., BRACHE DE MEJIA, V., LEON, P., and FAUNDES, A. Absence of chorionic gonadotropin in sera of women who use intrauterine devices. Fertility and Sterility 44(2): 214–218. Aug. 1985.
318. SEGAMBA, L., NDIKUMASABO, V., TOMASSI, F. DE, and MAKINSON, C. Enquete demographique et de sante au Burundi 1987: rapport preliminaire. [Burundi Demographic and Health Survey 1987: preliminary report.][FRE] Ministry of the Interior, Department of Population. and Institute for Resource Development, [Bujumbura, Burundi, and Columbia, Maryland], 1987. 46 p.
*319. SENANAYAKE, P. Intrauterine devices: problems encountered in family planning programmes of developing countries. In: Diczfalusy, E. and Diczfalusy, A., eds. Research on the regulation of human fertility: needs of developing countries and priorities for the future: Vol. 2. Background documents. Copenhagen, Scriptor, 1983. p. 433–448.
320. SHAW, S.T., Jr., ANDRADE, A.T.L., PAIXAO DE SOUZA, J., MACAULAY, L.K., and ROWE, P.J. Quantitative menstrual and intermenstrual blood loss in women using Lippes Loop and Copper T intrauterine devices. Contraception 21(4): 343–352. Apr. 1980.
321. SHELTON, J. (US Agency for International Development) [Price of contraceptives] Personal communication, Feb. 5, 1988.
322. SHEPPARD, B.L. Endometrial morphological changes in IUD users: a review. Contraception 36(1): 1–10. Jul. 1987.
323. SHEPS, M.C. An analysis of reproductive patterns in an American isolate. Population Studies 15: 65–80. 1965–1966.
324. SIEDLECKY, S. Current usage of and attitudes towards contraception in Australia. Healthright 6(1): 7–16. Nov. 1986.
325. SIMONS, P. (Family Planning Federation of Australia) [Contraceptive use in Australia] Personal communication, Jun. 24, 1987.
326. SINEI, S.K.A., SCHULZ, K.F., et al. Preventing IUD-related pelvic infection: the efficacy of prophylactic doxycycline at insertion. Dec. 10, 1987. 28 p. (Unpublished)

* 327. SIVIN, I. IUD-associated ectopic pregnancies, 1974 to 1984. In: Zatuchni, G.I., Goldsmith, A., Sciarra, J.J., and OSBORN, C.K., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 340–353.
328. SIVIN, I. The intrauterine device and uterine perforation. [Letter] Obstetrics and Gynecology 64(5):744–745. Nov. 1984.
329. SIVIN, I. (Population Council) [Anemia rates among 5-year TCu-380Ag users] Personal communication, Jan. 18, 1988.
330. SIVIN, I. (Population Council) [Ectopic pregnancy rates with the TCu-380A and the LNG-20 IUDs] Personal communication, May 22, 1987.
* 331. SIVIN, I. and SCHMIDT, F. Effectiveness of IUDs: a review. Contraception 36(1): 55–85. Jul. 1987.
332. SIVIN, I. and STERN, J. Long-acting, more effective Copper T IUDs: a summary of U.S. experience, 1970–75. Studies in Family Planning 10(10): 263–281. Oct. 1979.
333. SIVIN, I. and TATUM, H.J. Four years of experience with the TCu 380A intrauterine contraceptive device. Fertility and Sterility 36(2): 159–163. Aug. 1981.
334. SIVIN, I., ALVAREZ, F., DIAZ, J., DIAZ, S., MAHGOUB, S., EL-, COUTINHO, E., BRACHE, V., DIAZ, M.M., FAUNDES, A., PAVEZ, M., MATTOS, C.E.R., and STERN, J. Intrauterine contraception with copper and with levonorgestrel: randomized study of the TCu 380Ag and Levonorgestrel 20 µg/day devices. Contraception 30(5): 443–456. Nov. 1984.
335. SIVIN, I., STERN, J., DIAZ, J., et. al. Two years of intrauterine contraception with levonorgestrel and with copper: a randomized comparison of the TCu 380Ag and levonorgestrel 20 µg/day devices. Contraception 35(3): 245–255. Mar. 1987.
336. SKANGALIS, M., MAHONEY, C.J., and O'LEARY, W.M. Microbial presence in the uterine cavity as affected by varieties of intrauterine contraceptive devices. Fertility and Sterility 37(2): 263–269. Feb. 1982.
337. SKJELDESTAD, F.E. and BRATT, H. Return of fertility after use of IUDs (Nova-T, MLCu250 and MLCu375). Advances in Contraception 3(2): 139–145. Jun. 1987.
338. SKRZYCKI, C. and GALLAGHER, M.H. The risky business of birth control. U.S. News & World Report, May 1986. p. 1–2.
339. SMITH, M.R. and SODERSTROM, R. Salpingitis: a frequent response to intrauterine contraception. Journal of Reproductive Medicine 16(4): 159–162. Apr. 1976.
340. SNOWDEN, R. General assessment of the Multiload Cu250 intrauterine device: UK network of IUCD research clinics. British Journal of Obstetrics and Gynaecology (Suppl. 4): 58–65. Sep. 1982.
* 341. SNOWDEN, R. The I.U.D.: a woman's guide. London, Unwin Paperbacks, 1986. 127 p.
342. SNOWDEN, R. (Institute of Population Studies, University of Exeter, UK) [Frequency of missing IUD strings] Personal communication, Sep. 21, 1987.
343. SNOWDEN, R. and PEARSON, B. Pelvic infection: a comparison of the Dalkon Shield and three other intrauterine devices. British Medical Journal 288(6430): 1570–1573. May 26, 1984.
344. SNOWDEN, R., WILLIAMS, M., and HAWKINS, D. The IUD: a practical guide. London, Croom Helm, 1977. 113 p.
345. SOCIEDADE CIVIL BEM-ESTAR FAMILIAR NO BRASIL (BEMFAM) and INSTITUTE FOR RESOURCE DEVELOPMENT, WESTINGHOUSE (IRD). Brazil demographic and health survey, 1986: preliminary report. [Brasília, Brazil], BEMFAM and [Columbia, Maryland], IRD, Dec. 1986. 33 p.
346. SODERBERG, G. and LINDGREN, S. Influence of an intrauterine device on the course of an acute salpingitis. Contraception 24(2): 137–143. Aug. 1981.
347. SOLÍS, J.A. (Pan American Health Organization) [IUD supplies, 1982–87] Personal communication, Jul. 28, 1987.
348. SONI, V. Thirty years of the Indian family planning program: past performance, future prospects. International Family Planning Perspectives 9(2): 35–45. Jun. 1983.
349. SPAIN. NATIONAL INSTITUTE OF STATISTICS (NIS). Encuesta de fecundidad 1985: avance de resultados. [Fertility survey 1985: advance results.] [Madrid], Spain, NIS, 1986. 237 p.
350. SPARKS, R.A., PURRIER, B.G.A., WATT, P.J., and ELSTEIN, M. Bacteriological colonisation of uterine cavity: role of tailed intrauterine contraceptive device. British Medical Journal 282: 1189–1191. Apr. 11, 1981.
351. SPIELER, J.M. Discussion: governmental regulatory agencies and IUDs. In: Zatuchni, G.I., Goldsmith, A., and Sciarra, J.J., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 67–68.
352. SPORNITZ, U.M., MAKABE, S., HAFEZ, E.S.E., and VAN OS, W.A.A. Scanning electron microscopy of the IUD tail. Contraceptive Delivery Systems 5(1): 29–45. Jan. 1984.
353. SRI LANKA. MINISTRY OF HEALTH (MOH). FAMILY HEALTH BUREAU. and FAMILY PLANNING ASSOCIATION OF SRI LANKA (FPASR). An experimental operations research field study to increase IUD acceptance in Sri Lanka. Colombo, Sri Lanka, MOH and FPASR, Oct. 1985. 53 p.
354. SRI LANKA. MINISTRY OF PLAN IMPLEMENTATION (MPI). DEPARTMENT OF CENSUS AND STATISTICS. and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Sri Lanka Demographic and Health Survey 1987, preliminary report. Sri Lanka, MPI, Jul. 1987. 23 p.
355. STADEL, B. (US Food and Drug Administration) [Actinomyces in long-term IUD users] Personal communication, Jan. 28, 1988.
356. STADEL, B.V. and SCHLESSELMAN, S. Extent of surgery for pelvic inflammatory disease in relation to duration of intrauterine device use. Obstetrics and Gynecology 63(2): 171–178. Feb. 1984.
357. STATE UNIVERSITY OF NEW YORK (SUNY). Family planning procedure manual for nurse-midwives 1982. [Albany, New York, SUNY, 1982]. 161 p.
358. STEVEN, J.D. and FRASER, I.S. The outcome of pregnancy after failure of an intrauterine contraceptive device. Journal of Obstetrics and Gynaecology 81: 282–284. Apr. 1974.
359. STONE, K.M., GRIMES, D.A., and MAGDER, L.S. Personal protection against sexually transmitted diseases. American Journal of Obstetrics and Gynecology 155(1): 180–188. Jul. 1986.
360. STRUTHERS, B.J. Pelvic inflammatory disease, intrauterine contraception, and the conduct of epidemiologic studies. Advances in Contraception 1(1): 63–76. 1985.
361. STUMPF, P.G. and LENKER, R.M. Insertion technique, not design, affects expulsion rates of postpartum intrauterine device. Contraception 30(4): 327–330. Oct. 1984.
362. SUMBUNG, P.P. The role of the IUD in the Indonesian National Family Planning Program. Jakarta, National Family Planning Coordinating Board, Sep. 1985. (Technical Reports Series Monograph No. 45) 22 p.
363. SUNG S., QIAN L.-J., and LIU X. Comparative clinical experience with 3 IUDs, TCu 380 Ag, TCu 220C and Mahua Ring, in Tianjin, People's Republic of China. Contraception 29(3): 229–239. Mar. 1984.
364. SUNG S., QIAN L.-J., and LIU X. Two-year comparative clinical experience with three IUDs in China. In: Zatuchni, G.I., Goldsmith, A., Sciarra, J.J., and OSBORN, C.K., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 109–114.
365. SWEDEN. NATIONAL CENTRAL BUREAU OF STATISTICS (NCBS). Kvinnor och barn: intervjuer med kvinnor om familj och arbete. [Women and children: interviews with women about family and work.] [SWE] Stockholm, NCBS, 1982. 101 p.
366. SWEET, R.L. and GIBBS, R.S. Infectious diseases of the female genital tract. Baltimore, Williams & Wilkins, 1985. 373 p.
367. TATUM, H. (Emory University) [Research on the postpartum TCu-380A IUD] Personal communication, Sep. 18, 1987.
* 368. TATUM, H.J. and CONNELL, E.B. A decade of intrauterine contraception: 1976 to 1986. Modern Trends 46(2): 173–192. Aug. 1986.
369. TATUM, H.J. and SCHMIDT, F.H. Contraceptive and sterilization practices and extrauterine pregnancy: a realistic perspective. Fertility and Sterility 28(4): 407–421. Apr. 1977.
370. TATUM, H.J. and ZIPPER, J.A. The "T" intrauterine contraceptive device and recent advances in hormonal anticonceptional therapy. Presented at the 6th Northeast Obstetrics-Gynecology Congress, Bahia, Brazil, Oct. 4–9, 1968. 6 p.
371. TATUM, H.J., SCHMIDT, F.H., and JAIN, A.K. Management and outcome of pregnancies associated with the Copper T intrauterine contraceptive device. American Journal of Obstetrics and Gynecology 126(7): 869–879. Dec. 1, 1976.
372. TATUM, H.J., SCHMIDT, F.H., PHILLIPS, D., MCCARTY, M., and O'LEARY, W.M. The Dalkon Shield controversy: structural and bacteriological studies of IUD tails. Journal of the American Medical Association 231(7): 711–717. Feb. 17, 1975.
373. THIERY, M. Immediate postpartum insertion of IUDs. IPPF Medical Bulletin 15(3): 1–2. Jun. 1981.
* 374. THIERY, M. Intrauterine contraception: technical advances, future prospects. Network 8(2): 3. Winter 1987.
375. THIERY, M. Timing of IUD insertion. In: Zatuchni, G.I., Goldsmith, A., Sciarra, J.J., and Osborn, C.K., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1985. p. 365–374.
376. THIERY, M. and KOSONEN, A. The multisleeved Copper T model TCu220C: effect of long-term use on corrosion and dissolution of copper. Contraception 35(2): 163–170. Feb. 1987.
377. THIERY, M., LAUFE, L., PAREWIJCK, W., VAN DER PAS, H., VAN KETS, H., DEROM, R., and DEFOORT, P. Immediate postplacental IUD insertion: a randomized trial of sutured (Lippes Loop and TCu220C) and non-sutured (TCu220C) models. Contraception 28(4): 299–313. Oct. 1983.
378. THIERY, M., MARTENS, G., and VAN DER EECKEN, A. Iron stores in users of oral and intrauterine contraception. IRCS Medical Science 14: 725. 1986.
379. THIERY, M., VAN DER PAS, H., and VAN KETS, H. A decade of experience with the TCu220C. Advances in Contraception 1: 313–318. 1985.
380. THIERY, M., VAN DER PAS, H., and VAN KETS, H. The MLCu375 intrauterine contraceptive device. Advances in Contraception 1: 37–44. 1985.
381. THIERY, M., VAN DER PAS, H., DELBEKE, L., and VAN KETS, H. Comparative performance of two copper-wired IUDs (ML Cu 250 and T Cu 200): immediate postpartum and interval insertion. Contraceptive Delivery Systems 1(1): 27–35. Jan. 1980.
382. THIERY, M., VAN KETS, H., and VAN DER PAS, H. Immediate postplacental IUD insertion: the expulsion problem. Contraception 31(4): 331–349. Apr. 1985.
383. THIERY, M., VAN KETS, H., VAN DER PAS, H., VAN OS, W., and DOMBROWICZ, N. The ML Cu250: clinical experience in Belgium and the Netherlands. British Journal of Obstetrics and Gynaecology (Suppl. 4): 51–53. Sep. 1982.
384. TIETZE, C. What price fertility control? Lower than that of unwanted pregnancy. Contemporary Ob/Gyn 12(1): 32–37. Jul. 1978.
385. TIETZE, C. and LEWIT, S. Evaluation of intrauterine devices: ninth progress report of the cooperative statistical program. Studies in Family Planning 55: 1–40. Jul. 1970.
386. TREDWAY, D.R., UMEZAKI, C.U., MISHELL, D.R., Jr., and SETTLAGE, D.S.F. Effect of intrauterine devices on sperm transport in the human being: preliminary report. American Journal of Obstetrics and Gynecology 123(7): 734–735. Dec. 1, 1975.
387. TRUSSELL, J. and KOST, K. Contraceptive failure in the United States: a critical review of the literature. Studies in Family Planning 18(5): 237–283. Sep.-Oct. 1987.
388. TUNÇBILEK, E., ÜNER, S., TOROS, A., CERIT, S., ULUSOY, M., AYHAN, Ö., PEKER, M., AKADLI, B., HANCIOGLU, A., KULU, I., and ÜNALAN, T. 1983 Turkish population and health survey. Ankara, Turkey, Hacettepe University, 1987. 117 p.
389. TUOMIVAARA, L., KAUPPILA, A., and PUOLAKKA, J. Ectopic pregnancy—an analysis of the etiology, diagnosis and treatment in 552 cases. Archives of Gynecology 237(3): 135–147. Jan. 1986.
390. UNITED KINGDOM. OFFICE OF POPULATION CENSUSES AND SURVEYS. Contraception, sterilisation and infertility. *In*: General Household Survey 1983. London, Her Majesty's Stationery Office, 1985. (Series GHS No. 13) p. 45–60.
391. UNITED NATIONS (UN). POPULATION DIVISION. OFFICE FOR DEVELOPMENT RESEARCH AND POLICY ANALYSIS. World population trends and policies: 1987 monitoring report. [New York], UN, 802 p. (ESA/P/WP.97; 86–34827) Dec. 18, 1986.
392. UNITED NATIONS FUND FOR POPULATION ACTIVITIES (UNFPA). Viet Nam: report of second mission on needs assessment for population assistance. New York, UNFPA, Mar. 1983. (Report No. 53) 59 p.
393. UNITED NATIONS FUND FOR POPULATION ACTIVITIES. Needs assessment: maternal and child health and family planning: Democratic People's Republic of Korea. [1984]. 17 p. (Unpublished)
394. UNITED NATIONS. ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC (ESCAP). The use of contraception in the Asian and Pacific region. Population Research Leads, No. 21. 1985. 31 p.
395. UNITED STATES. CENTERS FOR DISEASE CONTROL (CDC). Family planning methods and practice: Africa. Atlanta, Georgia, CDC, 1983. 329 p.
396. UNITED STATES. CENTERS FOR DISEASE CONTROL. Recommendations for prevention of HIV transmission in health-care settings. Morbidity and Mortality Weekly Report 36(2S): 3S–18S. Aug. 21, 1987.
397. UNITED STATES. CENTERS FOR DISEASE CONTROL. 1985 STD treatment guidelines. Morbidity and Mortality Weekly Report 34(4S): 7SS–10SS. Oct. 18, 1985.
*398. UNITED STATES. DEPARTMENT OF HEALTH AND HUMAN SERVICES. CENTERS FOR DISEASE CONTROL (CDC). IUDs: guidelines for informed decision-making and use. Atlanta, Georgia, CDC, May 1, 1987. 14 p. (Mimeo)
399. UNITED STATES. DEPARTMENT OF HEALTH AND HUMAN SERVICES. CENTERS FOR DISEASE CONTROL (CDC). Sexually transmitted diseases summary 1986. [Poster] Atlanta, Georgia, CDC, 1986.
400. UNITED STATES. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. FOOD AND DRUG ADMINISTRATION (FDA). Progestasert IUD and ectopic pregnancy. FDA Drug Bulletin 8(6): 37. Dec. 1978-Jan. 1979.
401. UNITED STATES. DEPARTMENT OF STATE. Population: status of IUDs. [Telegram to AID worldwide] 1986. 1 p. (Unpublished)
402. UNITED STATES. DEPARTMENT OF STATE. Population: withdrawal of copper IUDs from the U.S. market. [Telegram to AID worldwide] Feb. 1986. 2 p. (Unpublished)
403. UNITED STATES. TORT POLICY WORKING GROUP (TPWG). Report of the Tort Policy Working Group on the causes, extent and policy implications of the current crisis in insurance availability and affordability. [Washington, D.C.], TPWG, Feb. 1986. 80 p.
404. VAN DE GIESSEN, G.J. Onderzoek Gezinsvorming 1982: voorlopige uitkomsten. [Netherlands Fertility Survey 1982: provisional results.] [DUT, summary in ENG] Maandstatistiek van de Bevolking 31(4–5): 36–53. Apr.-May 1983.
405. VAN DER PAS, H., THIERY, M., DELBEKE, L., VAN KETS, H., and HASPELS, A. Six years' experience with the T Cu 220C intrauterine contraceptive device. Contraceptive Delivery Systems 1(1): 1–10. Jan. 1980.
406. VAN DER PAS, H., THIERY, M., VAN KETS, H., and PAREWIJCK, W. The Ombrelle-380 IUD: a pilot study. Advances in Contraception 3(1): 37–41. Mar. 1987.
407. VAN DER PAS, H., WILDEMEERSCH, D., THIERY, M., VAN KETS, H., and PAREWIJCK, W. The CU-FIX 360 IUD. Advances in Contraception 3(3): 193–194. Sep. 1987.
408. VAN DER VURST, J. Anticonceptie in Vlaanderen. [Contraception in Flanders.] [DUT] [Dissertation: Utrecht, Rijksuniversiteit, 1985]. p. 249–324.
409. VAN KETS, H., THIERY, M., and VAN DER PAS, H. IUD insertion during cesarean section. Advances in Contraception 1: 337–340. 1985.
410. VAN KETS, H., THIERY, M., VAN DER PAS, H., and PAREWIJCK, W. Immediate postpartum insertion: performance of the Nova-T-PP and randomized comparison with the Nova-T. Advances in Contraception 3(1): 63–69. Mar. 1987.
* 411. VAN OS, W.A.A. The Multiload intrauterine device: development and evaluation. Doctoral dissertation, Rijks University of Utrecht, The Netherlands, 1987. 139 p.

412. VAN OS, W.A.A. (Elizabeth Gasthuis, Haarlem, The Netherlands) [Research on new Multiload IUDs and frameless IUDs] Personal communication, Jul. 20, 1987.
413. VESSEY, M., MEISLER, L., FLAVEL, R., and YEATES, D. Outcome of pregnancy in women using different methods of contraception. British Journal of Obstetrics and Gynaecology 86(7): 548–556. Jul. 1979.
* 414. VESSEY, M.P., LAWLESS, M., MCPHERSON, K., and YEATES, D. Fertility after stopping use of intrauterine contraceptive device. British Medical Journal 286: 106. Jan. 8, 1983.
415. VESSEY, M.P., YEATES, D., FLAVEL, R., and MCPHERSON, K. Pelvic inflammatory disease and the intrauterine device: findings in a large cohort study. British Medical Journal 282(6267): 855–857. Mar. 14, 1987.
416. VIDELA-RIVERO, L., ETCHEPAREBORDA, J.J., and KESERU, E. Early chorionic activity in women bearing inert IUD, copper IUD and levonorgestrel-releasing IUD. Contraception 36(2): 217–226. Aug. 1987.
417. VILLA-REAL, H.M. (United Nations Fund for Population Activities (UNFPA)) [UNFPA IUD supplies, 1983–87] Personal communication, Jul. 10, 1987.
418. WASHINGTON, A.E., SWEET, R.L., and SHAFER, M.-A. B. Pelvic inflammatory disease and its sequelae in adolescents. Journal of Adolescent Health Care 6(4): 298–310. Jul. 1985.
419. WASSERHEIT, J. (Johns Hopkins Medical School and Baltimore City Health Department) [Genital infections and IUD insertion] Personal communication, Feb. 12 and 29, 1988.
420. WASSERHEIT, J.N. Pelvic inflammatory disease and infertility. Maryland Medical Journal 36(1): 58–63. Jan. 1987.
421. WESTRÖM, L. Incidence, prevalence, and trends of acute pelvic inflammatory disease and its consequences in industrialized countries. American Journal of Obstetrics and Gynecology 138(7, Pt. 2): 880–892. Dec. 1, 1980.
* 422. WESTRÖM, L. Pelvic inflammatory disease: bacteriology and sequelae. Contraception 36(1): 111–128. Jul. 1987.
423. WESTRÖM, L. and MÅRDH, P.-A. Current views on the concept of pelvic inflammatory disease. Australian and New Zealand Journal of Obstetrics and Gynaecology 24(2): 98–105. May 1984.
424. WESTRÖM, L., BENGTSSON, L.P., and MARDH, P.-A. Incidence, trends, and risks of ectopic pregnancy in a population of women. British Medical Journal 282(6257): 15–18. Jan. 3, 1981.
425. WHEELER, R.G., COLE, L.P., and GALVEZ, R.S. IUDs with or without strings. In: Zatuchni, G.I., Goldsmith, A., and Sciarra, J.J., eds. Intrauterine contraception: advances and future prospects. Philadelphia, Harper & Row, 1984. p. 420–426.
426. WHITE, M.K., ORY, H.W., ROOKS, J.B., and ROCHAT, W. Intrauterine device termination rates and the menstrual cycle day of insertion. Obstetrics and Gynecology 55(2): 220–224. Feb. 1980.
427. WILCOX, A.J., WEINBERG, C.R., ARMSTRONG, E.G., and CANFIELD, R.E. Urinary human chorionic gonadotropin among intrauterine device users: detection with a highly specific and sensitive assay. Fertility and Sterility 47(2): 265–269. Feb. 1987.
428. WILLSON, J.R., LEDGER, W.J., BOLLINGER, C.C., and ANDROS, G.J. The Margulies intrauterine contraceptive device. American Journal of Obstetrics and Gynecology 92(1): 62–70. May 1, 1965.
429. WILSON, A. (Development Associates) [Training and role of paramedics in IUD programs] Personal communication, Oct. 16, 1987.
430. WILSON, J. A randomized trial of the Nova T, the MLCu375, and the MLAgCu250 IUDs: 1 and 2 year results. Advances in Contraception 2(3): 247–248. Sep. 1986.
431. WILSON, J.C. A prospective New Zealand study of fertility after the removal of copper IUDs for conception and for complications: a 4 year study. [1987]. 19 p. (Unpublished)
432. WILSON, J.C. A randomized comparative study of 3 IUDs: Nova-T, ML Cu 375 and ML Ag Cu 250 in New Zealand: 1 year results. Aug. 31, 1987. 12 p. (Unpublished)
433. WINIKOFF, B., SEMERARO, P., and ZIMMERMAN, M. Contraception during breastfeeding: a clinician's sourcebook. [New York], Population Council, [1988]. 36 p.
434. WOLF, A.S. and KRIEGER, D. Bacterial colonization of intrauterine devices (IUDs). Archives of Gynecology 239(1): 31–37. 1986.
* 435. WORLD HEALTH ORGANIZATION (WHO). Guidelines for sterilization and high level disinfection methods effective against human immunodeficiency virus (HIV). Geneva, WHO, Jan. 22, 1988. 11 p.
* 436. WORLD HEALTH ORGANIZATION (WHO). Intrauterine devices: their role in family planning care. Geneva, WHO, 1983. (WHO Offset Publication No. 75) 53 p.
* 437. WORLD HEALTH ORGANIZATION (WHO). Mechanism of action, safety and efficacy of intrauterine devices. Geneva, WHO, 1987. (Technical Report Series 753) 91 p.
438. WORLD HEALTH ORGANIZATION (WHO). SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION AND SPECIAL PROGRAMME ON AIDS. Report of a meeting on contraceptive methods and HIV infections. Geneva, WHO, Jun. 1987. 21 p.
439. WORLD HEALTH ORGANIZATION (WHO). SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. Ninth annual report. Geneva, WHO, Dec. 1980. 162 p.
440. WORLD HEALTH ORGANIZATION (WHO). SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. Tenth annual report. Geneva, WHO, Nov. 1981. 67 p.
441. WORLD HEALTH ORGANIZATION (WHO). TASK FORCE ON METHODS FOR THE REGULATION OF IMPLANTATION. and NEWTON, J., SZONTAGH, F., LEBECH, P., and ROWE, P. A collaborative study of the progesterone intrauterine device (Progestasert). Contraception 19(6): 575–589. Jun. 1979.
* 442. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON INTRAUTERINE DEVICES FOR FERTILITY REGULATION. A multinational case-control study of ectopic pregnancy. Clinical Reproduction and Fertility 3(2): 131–143. Jun. 1985.
443. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON INTRAUTERINE DEVICES FOR FERTILITY REGULATION. Comparative multicentre trial of three IUDs inserted immediately following delivery of the placenta. Contraception 22(1): 9–18. Jul. 1980.
444. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON INTRAUTERINE DEVICES FOR FERTILITY REGULATION. Interval IUD insertion in parous women: a randomized multicentre comparative trial of the Lippes Loop D, TCu220C and the Copper 7. Contraception 26(1): 1–22. Jul. 1982.
445. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON INTRAUTERINE DEVICES FOR FERTILITY REGULATION. IUD insertion following spontaneous abortion: a clinical trial of the TCu 220C, Lippes Loop D, and Copper 7. Studies in Family Planning 14(4): 109–114. Apr. 1983.
* 446. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON INTRAUTERINE DEVICES. PID associated with fertility regulating agents. Contraception 30(1): 1–21. Jul. 1984.
447. WORLD HEALTH ORGANIZATION. SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION. TASK FORCE ON INTRAUTERINE DEVICES FOR FERTILITY REGULATION. The Aiza T IPCS 52, a longer acting progesterone IUD: safety and efficacy compared to the TCu220C and Multiload 250 in two randomized multicentre trials. Clinical Reproduction and Fertility 2(2): 113–128. Jun. 1983.
448. WRIGHT, N.H., SUJPLUEM, C., ROSENFIELD, A.G., and VARAKAMIN, S. Nurse-midwife insertion of the Copper T in Thailand: performance, acceptance, and programmatic effects. Studies in Family Planning 8(9): 237–243. Sep. 1977.
449. ZAKIN, D., STERN, W.Z., and ROSENBLATT, R. Complete and partial uterine perforation and embedding following insertion of intrauterine devices: 2. Diagnostic methods, prevention, and management. Obstetrical and Gynecological Survey 36(8): 401–417. Aug. 1981.
450. ZAKIN, D., STERN, W.Z., and ROSENBLATT, R. Complete and partial uterine perforation and embedding following insertion of intrauterine devices: 1. Classification, complications, mechanism, incidence, and missing string. Obstetrical and Gynecological Survey 36(7): 335–353. Jul. 1981.
451. ZHANG, P.-Z. Five years experience with the Copper T 200 in Shanghai: 856 cases. Contraception 22(6): 561–571. Dec. 1980.
452. ZHU, S.-M. The copper intrauterine device: copper corrosion in utero and the effects of the copper ion on some enzyme activities. In: Chang, C.F., Griffin, D., and Woolman, A., ed. Recent advances in fertility regulation: proceedings of a symposium organized by the Ministry of Public Health of the People's Republic of China, and the World Health Organization's Special Programme of Research Development and Research Training in Human Reproduction, Beijing, Sep. 2–5, 1980. Geneva, Atar, 1981. p. 248–264.
453. ZIPPER, J., MEDEL, M., GOLDSMITH, A., and EDELMAN, D.A. Six-year continuation rates for CU-T-200 users. Journal of Reproductive Medicine 18(2): 95–97. Feb. 1977.
454. ZIPPER, J.A., TATUM, H.J., PASTENE, L., MEDEL, M., and RIVERA, M. Metallic copper as an intrauterine contraceptive adjunct to the "T" device. American Journal of Obstetrics and Gynecology 105(8): 1274–1278. Dec. 15, 1969.

ADDENDA

455. AMSEL, R., TOTTEN, P.A., SPIEGEL, C.A., CHEN, K.C.S., ESCHENBACH, D., and HOLMES, K.K. Nonspecific vaginitis: diagnostic criteria and microbial and epidemiologic associations. American Journal of Medicine 74(1): 14-22. Jan. 1983.
456. BOUHAFA, M. Draft team member contributions to mid-term evaluation of the Population and Family Planning Project (608–0171) in Morocco. Mar. 1988. 13 p. (Unpublished)
457. BRUNO, K. (G.D. Searle and Company) [Lawsuits on the Cu-7 IUD] Personal communication, Mar. 23, 1988.
458. CATES, W. (US CDC) [Genital infections and IUD insertion] Personal communication, Apr. 21, 1988.
459. CAVANAGH, D. and COMAS, M.R. Spontaneous abortion. In: Danforth, D.N., ed. Obstetrics and Gynecology. 4th ed. Philadelphia, Harper & Row, 1982. p. 378–392.
460. DEMAEYER, E. and ADIELS-TEGMAN, M. The prevalence of anaemia in the world. World Health Statistics Quarterly 38(3): 302–316. 1985.
461. FINISHING ENTERPRISES. Prescribing information: Lippes Loop intrauterine contraceptive device. [Package insert] New York, Finishing Enterprises, 1987. 1 p.
462. KIRSHON, B., POINDEXTER, A.N., 3rd, and SPITZ, M.R. Pelvic adhesions in intrauterine device users. Obstetrics and Gynecology 71(2): 251–254. Feb. 1988.
463. KOZUH NOVAK, M., ANDOLSEK, L., BALOGH, S.A., and WASZAK, C.S. Long-term use of intrauterine devices. IPPF Medical Bulletin 22(1): 1–3. Feb. 1988.
464. LARSON, N. (GynoPharma, Inc.) [Market research to develop the brand name ParaGard] Personal communication, Apr. 18, 1988.
465. LARSSON, B. and FIANU, S. Long-term use of a Progestasert System, a progesterone-releasing intrauterine device, in treatment of menorrhagia. Current Therapeutic Research 33(6): 869–873. Jun. 1983.
466. MONTEITH, R.S. and KINCHEN, S. Foreign trip report: Paraguay, August 23–23, 1987—family planning survey. [Memorandum] Atlanta, Georgia, Centers for Disease Control, September 17, 1987. 23 p.
467. PERU. INSTITUTO NACIONAL DE ESTADISTICA (INE). and INSTITUTE FOR RESOURCE DEVELOPMENT/WESTINGHOUSE (IRD/W). Enquesta Demográfica y de Salúd Familiar 1986: resultados preliminaros. [Demographic and Family Health Survey, 1986: preliminary results.] [SPA] Marzo, Peru, INE, Mar. 1987. 30 p.
468. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. Contraceptive use in China. Nov. 1, 1984. 8 p. (Unpublished)
469. PROGRAM FOR THE INTRODUCTION AND ADAPTATION OF CONTRACEPTIVE TECHNOLOGY. [Description of three IUD projects in China.] [1987]. 2 p. (Unpublished)
470. SHAABAN, M.M., SALAH, M., ZARZOUR, A., and ABDULLAH, S.A. A prospective study of Norplant implants and the TCu 380Ag IUD in Assiut, Egypt. Studies in Family Planning 14(6–7): 163–169. Jun.-Jul. 1983.
471. SHERRIS, J.D., RAVENHOLT, B.B., BLACKBURN, R., GREENBERG, R.H., KAK, N., PORTER, R.W., 3rd, and SAUNDERS, S. Contraceptive social marketing: lessons from experience. Population Reports, Series J, No. 30. Baltimore, Johns Hopkins University, Population Information Program, Jul.-Aug. 1985. 40 p.
472. SIVIN, I., ALVAREZ SANCHEZ, F., DIAZ, S., HOLMA, P., COUTINHO, E., MCDONALD, O., ROBERTSON, D.N., and STERN, J. Three-year experience with Norplant subdermal contraception. Fertility and Sterility 39(6): 799–808. Jun. 1983.
473. VESSEY, M., DOLL, R., PETO, R., JOHNSON, B., and WIGGINS, P. A long-term follow-up of women using different methods of contraception—an interim report. Journal of Biosocial Science 8(4): 375–427. Oct. 1976.
474. WASSERHEIT, J.N., HARRIS, J.R., CHAKRABORTY, J., KAY, B.A., and MASON, K.J. Reproductive tract infections in a family planning population in rural Bangladesh: a neglected opportunity to pomote MCH-FP programs. 1988. 36 p. (Unpublished)
475. WORLD HEALTH ORGANIZATION (WHO) DIVISION OF FAMILY HEALTH. Maternal mortality rates: a tabulation of available information. 2nd ed. Geneva, WHO, 1986. 46 p.

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